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DR. HERRICK

A LESSON IN ANATOMY — (MODERN VERSION)

Medical
Wahr

Clinical Medicine

A Monthly Postgraduate Course

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Labor Omnia Vincit

THERE is no field of human endeavor wherein any solid and substantial progress has been made without the expenditure of an enormous amount of effort, of both brawn and brain—sometimes more of one and sometimes more of the other, but always both, in varying proportions.

Of no field of activity is this more certainly true than it is in regard to the medical profession, where he who would achieve skill, ability, wisdom, fame, or financial success must pay for any or all of these things by the sacrifice of physical ease; by long hours of study and painstaking experiment; by the exercise of patience, altruism and diligence; and by a whole-hearted enthusiasm for and devotion to his chosen line of work.

Consider Vesalius, laboring during the darkness of night over corpses which he had obtained by stealth, and with infinite care and patience working out those details of structure and relations in the human body upon which the science of anatomy is based.

Consider the years of study and toil by means of which Harvey was able to demonstrate the nature and functions of the circulatory system and many of the fundamental facts of embryology, only to be met with the envy, unjust criticism and hatred of many of his colleagues. Yet so he gave to the world discoveries which have benefited millions of human beings and has

written his name in the hearts and minds of men for all time.

But the men prominent in the medical profession did not all live in the sixteenth century. Many great names are to be found in our own generation, and a good number of the men who bear them are now living. There are still those who think—or, at least, say—that “luck” or “pull” or some other mythical thing has placed these men in the front ranks of the profession of medicine; but, today, as long ago—as always—the seats “at the top” are reached by that stairway whose steps are energy, sincerity, intelligence, patience, enthusiasm, devotion and work.

On the office walls of many physicians hangs a painting by a famous Dutchman of bygone days; it is called, “A Lesson in Anatomy”. Here is another to hang beside it, and if the setting is less picturesque the figures are no less famous and the lesson is the same: “*Labor omnia vincit*”.

The picture which is our frontispiece was taken at the Cook County Morgue, Chicago, in 1888, and has not heretofore been published. It came into our hands through the courtesy of Mr. Christian Bay, Medical Librarian of the Crerar Library, Chicago, and shows Dr. Christian Fenger demonstrating anatomy or gross pathology to Dr. Ludvig Hektoen, Dr. James B. Herrick, and others.

Christian Fenger was born at Copenhagen, Denmark, November 3, 1840. Very little is known of his youth. His close friend and long-time associate, Nicholas Senn, said that he had reason to believe that Fenger never was a boy—that he was born with an earnest, serious disposition.

He was graduated from the Medical Department of the University of Copenhagen in 1867, having spent most of his time in the dissecting-room, morgue, laboratories and clinics and in poring over the most modern textbooks.

Fenger desired to become a teacher of pathology but, when he failed to obtain such a position in his own country, he went to Egypt as a member of the Sanitary Council of Cairo. Here he learned the Arabic language and became familiar with tropical diseases.

He came to the United States in 1877, and his remarkable work in the Cook County Morgue excited the wonder and admiration of all who saw it.

He soon acquired a large surgical practice, and all diseased tissues removed at operation were subjected to the most minute and searching microscopical examination. Remember that this man, who is oftenest thought of as a surgeon, was a marvelous pathologist, as well as an expert microscopist and bacteriologist.

For eighteen years Fenger taught Surgery in the College of Physicians and Surgeons, Northwestern University Medical School and Rush Medical College, and he was surgeon to a number of the best-known hospitals in Chicago.

Not content with the instruction he gave during the day, he frequently had his internes come to his home in the evening, where details of difficult cases were threshed out.

His operations looked like pictures out of a textbook, and his industry was unbelievable. Who but Fenger could or would conduct a clinic from two o'clock in the afternoon until nine o'clock at night?

What made Fenger one of the greatest surgeons this country ever saw and, perhaps, the greatest surgical pathologist that ever lived? *Work!* Unremitting, tireless work—it is reported that he performed over 50,000 autopsies with his own hands—and a sincere and whole-hearted devotion to his profession and its advancement.

Ludwig Hektoen was born at Westby, Wisconsin, on July 2, 1863. He received The degree of A. B. from Luther College,

Decorah, Iowa, in 1883, and the same institution made him a Master of Arts in 1896. He also studied at the University of Wisconsin.

The College of Physicians and Surgeons, Chicago, graduated him as a Doctor of Medicine in 1887, after which he studied for several years at Upsala, Prague and Berlin. Returning to this country, he took the M.D. degree a second time from Rush Medical College, Chicago, in 1896.

The University of Norway conferred the honorary degree of M.D. upon him in 1911. The University of Michigan, in 1913; and the University of Wisconsin, in 1916, made him an Sc.D.; and in 1920, the University of Cincinnati gave him authority to write LL.D. after his name.

He became Lecturer on Pathology at Rush Medical College in 1890, and thereafter was, successively, Physician to the Coroner's Office Chicago; Professor of Pathology at the College of Physicians and Surgeons; and Professor of Morbid Anatomy and Pathology at Rush Medical College.

He has been Professor and head of the Department of Pathology, University of Chicago since 1901, and Director of the John McCormick Institute for Infectious Diseases since 1902.

He is a member of many medical societies and other learned bodies in this and other countries, and he has presided over a number of them.

His writings include several textbooks and numerous important contributions to current medical literature.

He has been an enormous and indefatigable worker all his life, having given up many of the ordinary social diversions to devote his days and nights to the progress of science.

James Bryan Herrick was born at Oak Park, Illinois, on August 11, 1861. He received his A.B. degree from the University of Michigan in 1882, and this institution conferred the honorary degree of Master of Arts upon him in 1907.

He was graduated as a Doctor of Medicine from Rush Medical College, in 1888, and immediately thereafter he served his internship in the Cook County Hospital, Chicago.

From 1890 to 1894, Dr. Herrick was instructor in medicine at his *Alma Mater*, after which he was made Adjunct Professor, in which capacity he served until 1900, when he became Professor of Medicine at

Rush Medical College (University of Chicago) and has held that position until now.

He has been attending physician at the Presbyterian Hospital, Chicago, since 1895, and is a member of many medical societies.

His "Handbook of Medical Diagnosis", which appeared in 1895, was well received, and his numerous contributions to current medical literature have been of practical and permanent value.

Dr. Herrick has been a sincere and able teacher for many years; a medical consultant and practitioner of wisdom and resource; and always a hard and unrelenting worker.

So here were and are three men whose names are known wherever the language of medical science is spoken, and they arrived at their niches in the hall of fame, not because they were better endowed than other men (though their inherent abilities were great) but because they cherished an ideal; because they set themselves a goal of accomplishment and then, with energy, intelligence, sincerity and joy, *worked to reach that goal*.

Inspiration starts things; intelligence guides things; industry does things.—Author Unknown.

PROGRESS AND PERSONAL IDEALS

This number of CLINICAL MEDICINE is devoted to a consideration of the progress which has recently been made in various lines of medical activity, but perhaps the most significant articles—because touching more closely upon the intimate, inner, personal life and thought of the individual physician—are those of Cutter and Haseltine.

That there is a widespread feeling of unrest and fundamental dissatisfaction among the members of the medical profession—as well as in the world at large—is fully understood by those who have given the matter any serious thought. It may be that the writers mentioned will give us some help in diagnosing our case—and diagnosis must always precede sound treatment.

Meantime, the address delivered by Dr. David Kinley, President of the University of Illinois, at the 1925 Commencement exercises of the Schools of Medicine and Dentistry, sets before us some nutritious food for thought.

Dr. Kinley feels that the striking characteristics of the idealized general practitioner are his great common sense, his power of observation, his well-balanced

judgment, the humaneness of his impulses and his devotion to his profession. His knowledge of the fundamental medical sciences is of less importance.

If this is true—and a large number of thoughtful men are coming to believe that such a suggestion has merit—then much of our emphasis in present-day medical teaching and practice is misplaced.

If the qualities of common sense, observation, judgment, humanness and devotion are ideal for a practitioner, why not for a specialist, also? Why not for a dentist, a pharmacist, a nurse or anyone connected with the science and art of healing?

If our medical curricula are open to criticism for their technical defects and deficiencies, may they not be even more defective or deficient in their teaching of sociology, economics and the broad but vital subject of *human relations*?

When we come right down to brass tacks, the really fundamental question is: what kind of a *human being* are you? What are your personal standards of conduct? What are your ideals and aspirations?

If you are a doctor or a dentist or a nurse or a pharmacist, what kind of a one *are* you—not what kind do you *appear* to be?

Your relations to the world stand in this order: those to God, your fellow man, your fellow citizens and, last, to your fellow practitioners. You are a man first, an American citizen second, and a doctor last.

Codes of professional ethics are, apparently, necessary at our present stage of evolution, and, with certain limitations, they are wise and right and he who observes them closely is wise and of good repute. They do not, however, supersede all other rights and duties. Nevertheless, he who would overstep them should first make very sure, in his own heart, that he is actually doing so in obedience to a higher mandate.

No sound and satisfying success is ever achieved at the expense of anyone else. Every valid bargain with life must be of *equal benefit to all concerned*. A reputation built upon intelligent, sincere and devoted service is well founded—otherwise not.

In the ultimate analysis, then, to progress, to succeed, to be happy, you must make up your mind to be whatever you are *with all there is in you*.

Progress and success are less a matter of teaching; of codes of ethics; of geographical locality; of special opportunities, than they are of personal standards of service and accomplishment—of *individual ideals*.

The age demands—our youth demand—an education freighted with a new set of values by which and for which we live.—Albert E. Wiggam.

NUX VOMICA AND STRYCHNINE

Nux vomica is obtained from the beans of *Strychnos Nux-vomica*, which look like small, brown, coat buttons, except that there are no holes for sewing them on.

It contains two alkaloids, strychnine and brucine, of which the former is so preponderantly in evidence that most of this discussion will be devoted to it, as the action of the whole drug may be considered as a diluted strychnine action, and whatever is said of strychnine is true, to a less degree, of Nux vomica.

Nux Vomica, itself, is chiefly used, in the form of the tincture (of which the adult dose is 5 to 30 minims), as an ingredient of bitter, stomachic tonics, and where strychnine effects are desired in children, who are much more sensitive to the use of this drug than are adults. The extract of nux vomica is sometimes used as a valuable ingredient of various pills for the treatment of chronic constipation, where its tonic action tends to overcome the depression of the bowels, with the consequent constipation, which follows the use of many cathartics.

The *physiological action* of strychnine, in full medicinal doses, is to increase reflex activity, the respiratory rate, pulse force, arterial pressure; to render all the five senses more acute; and to cause systemic irritation and excitement.

The chief action of strychnine is upon the *nervous system*. It excites the spinal cord in its motor tracts and probably increases the receptive activity of the sensory centers. It has a slight influence in increasing the conductive power of both motor and sensory nerves.

On the *circulatory system*, strychnine acts to increase the force of the heart-beats and also the pulse-rate by stimulating the heart muscle and its ganglia. Arterial blood pressure is raised by stimulation of the vasomotor center.

Strychnine is one of the most powerful stimulators of the *respiratory center* at our disposal, increasing both the rate of respiration and the respiratory capacity.

The *genital functions* in both sexes are stimulated. The menstrual flow, testicular secretion and sexual appetite and power are increased.

Ordinary doses have no effect upon the *temperature*. *Peristaltic movement* of all

hollow viscera, intestines and bladder is stimulated. The *pupil* is dilated.

Most of the strychnine ingested is oxidized and destroyed by the liver, the remainder being excreted, chiefly by the kidneys, as strychnine and strychnic acid.

In *poisonous doses* strychnine acts in from 15 to 30 minutes, either suddenly or gradually. In the former case the patient goes, at once, into violent tetanic (tonic) convulsions, with opisthotonos and *risus sardonicus*, alternating with brief periods of complete relaxation (thus differing from the continuous tonic convulsions of tetanus); while in the latter the early symptoms are stiffness in the muscles of the face and neck (not in the jaws, like tetanus), with motor irritability and violent starting on slight stimulation. Later the typical convulsions develop, being precipitated by any sensory stimulus, especially of the skin.

Consciousness is not lost, and the violent cramping of the muscles causes exquisite pain. The slightest touch on the skin will bring on a spasm; but it is said that grasping the contracted muscles firmly and vigorously relieves the pain somewhat.

The average fatal dose for an adult is $1\frac{1}{2}$ to $1\frac{3}{4}$ grains, but death has occurred following doses as small as $\frac{1}{2}$ grain and recovery has followed doses as large as 15 grains.

The *chemical antidote* for strychnine is *tannic acid*, the most readily available form of which is probably to be found in strong decoctions of tea or coffee, preferably cold. The stomach should be washed out as soon as possible, as strychnine tannate is slowly soluble. After the gastric lavage, a solution containing 60 grains of potassium bromide and 20 grains of chloral should be left in the stomach.

The *physiological antidotes* are the relaxants and nervous depressants, particularly chloroform, chloral (which depresses the motor tracts of the cord), potassium bromide (which depresses the sensory tracts), amyl nitrite, nitroglycerin, tobacco, etc.

If the patient is able to breathe, the amyl nitrite or chloroform (not ether) should be given by inhalation. If spasms interfere with respiration, amyl nitrite may be given hypodermically and chloral, 20 grains, either by mouth or, in starch water, by rectum.

If spasms are very severe, it may be necessary to wait for the periods of relaxation and then push the treatment vigorously.

The uses of strychnine in therapeutics are many and varied, and it is one of the most potent drugs in our armamentarium. Because of these facts, great care must be exercised not to misuse it. Remember, it is a powerful *stimulant*, but rarely acts as a tonic. It adds nothing to the body's powers, but simply mobilizes the reserve forces to meet an emergency. Its use should, therefore, be reserved, ordinarily, to meet emergencies and not for the routine treatment of minor conditions.

In *shock* of all kinds, strychnine is one of our most reliable remedies, particularly when there is danger of respiratory failure. In such cases, it should be used boldly, by the hypodermic route, and its action is frequently reenforced by the addition of 1/100 grain of atropine to each dose.

In cases of *paralysis* or paresis from any cause, including lead poisoning, strychnine is frequently of value in keeping up the muscular tone and preventing atrophy, while other measures of treatment are being instituted. It is also helpful in many cases of *functional nervous atony*, with depression.

As a remedy for *snake bites* and poisoning with *mushrooms*, particularly the *Amanita phalloides*, or "Cup of Death", strychnine stands at the head. It should be given in full, *toxic* doses—1/5 to 1/2 grain, hypodermically—and the dosage repeated at such intervals and in such amounts as are necessary to maintain a moderate degree of muscular rigidity. Failure in these cases is due to timidity or carelessness on the part of the physician.

Strychnine is a better antidote to opium than is atropine; and, combined with caffeine, it is an excellent remedy in the treatment of *acute alcoholism*. It is practically specific in chloroform poisoning.

No treatment for *drug addiction*, of any kind, is complete without strychnine; but it should be remembered that unless the drug is used with great care and judgment, a *strychnine habit* may result.

In the treatment of *sexual weakness* and allied conditions, it should be remembered that no drug can restore youth and that strychnine adds nothing to the body's store of power, so that its employment in such cases requires the greatest finesse.

Strychnine is *contraindicated* in acute inflammatory conditions of the nervous, circulatory or muscular systems. It should *never* be used as a *heart tonic*. Its effects are more or less *cumulative*, and increase

with continued administration. *Children* are *more susceptible* to its effects than are adults.

If the physiological effects of this drug are carefully studied and fully understood, its field of usefulness will be found to be enormous and its effects beneficial in the extreme in a great variety of conditions; but, like most potent remedies, the dangers of its misuse by the uninstructed or careless are almost equally great.

The best a doctor can do is to help nature to mend her own handiwork. She is the supreme healer.—
Dr. J. Allen Patton.

AMERICAN NAMES FOR AMERICAN DRUGS

Before the War, almost all of the synthetic chemicals used in medicine were made in Germany and were known only under the foreign, proprietary names.

When the supplies of these imported drugs were shut off, the medical profession found itself in a deplorable situation. We had learned to use and depend upon many of these compounds and when they were unobtainable, we scarcely knew where to turn.

But our drug manufacturers are a resourceful crowd, and it was not long before American drugs, which were exact chemical duplicates of the foreign products, began to appear in the markets, not under the well-known proprietary names but under their proper chemical designations. These new names sounded strange to us, at first, and did not come readily to the tips of our tongues, when we were speaking, nor to the tips of our pens when we started to write a prescription. There was nothing odd about that.

A number of years have now gone by, and there is less and less reason every year why our American physicians should continue to prescribe and recommend drugs whose very names announce them as being of foreign manufacture. Our drug houses are now turning out products which are, in every way, just as satisfactory as their imported chemical duplicates and which are, as a rule, marketed at a decidedly lower price.

A large proportion of our physicians continue to say "Aspirin" when they are actually using and meaning acetylsalicylic acid, of American manufacture; and "Novocaine" when they really use and mean procaine, a domestic product.

In order to facilitate the use of the proper American name for some of the commoner remedies which we are discussing, we have prepared a table of the domestic and foreign names, in parallel columns. This is not all of them, but, if we can learn to speak of and write these with ease and certainty, a long step in the right direction will have been made.

Here is the list.

American or Non-Proprietary Name	Foreign or Proprietary Name
Acetylsalicylic Acid	Aspirin
Arsphenamine	Salvarsan
Neosarsphenamine	Neosalvarsan
Phenacaine	Holocaine
Procaine	Novocaine
Sulpharsphenamine	Sulfarsenol
Eucatropin	Euphthalmine
Barbital	Veronal
Brabital Sodium	{ Veronal Sodium
	{ Medinal
Phenobarbital	Luminal
Phenobarbital Sodium	Luminal Sodium
Bismuth Tribromophenate	Xeroform
Bismuth Betanaphtholate	Orphol
Carbromal	Adalin
Calbroben	Sabromin
Oxyquinolin Sulphate	Chinosol
Chlorbutanol	Chloretone
Cinchophen	Atophan
Neocinchophen	{ Neoatophan
	{ Tolysin
Creosote Carbonate	Cresotal
Guaiaacol Benzoate	Benzosol
Guaiaacol Carbonate	Duotal
Guaiaacol-Sulphonate	Thiocol
Compound Solution of Cresol	Lysol
Epinephrin	{ Adrenalin
	{ Suprarenalin, etc.
Solution of Formaldehyde	Formalin
Hexamethylenamine	{ Urotropine
	{ Formin
	{ Cystogen
Insulin	Iletin
Thymol Iodide	Aristol
Acetphenetidin	Phenacetin
Phenetsal	Salophen
Amidopyrine	Pyramidon
Quinine Ethyl Carbonate	Equinine
Ethylhydrocupreine	Optochin
Resorcin Monacetate	Euresol

{ Protargin Strong	{ Protargol
{ Strong Silver-protein	{ Proganol
{ Protargin Mild	{ Protargin, etc.
{ Mild Silver-protein	{ Protargin
Sulphonmethane	{ Argyrol, etc.
Sulphonethylmethane	Sulphonal
Acetannin	Trional
Albutannin	Tannigen
	Tannalbin

Those with liberal culture ought to be the leaders in maintaining the standards of citizenship, or their education is a failure.—Coolidge.

MALARIA

Many of us are all too prone to overlook our mercies, while laying great stress upon those conditions which are not wholly satisfactory to us.

We have so little malaria in most parts of this country, or, when it appears, we control it so promptly, that most physicians are not greatly interested in articles upon the treatment of this disease, because they see such cases so seldom.

In Greece, Asia Minor, Syria, Palestine and the Caucasus, malaria is, however, a veritable scourge. The wars and revolutions which have swept over these countries in recent years have broken down the resistance which the population had developed to the disease, and death stalks today on the wings of mosquitos throughout the lands which were the cradle of Western civilization.

Malaria was an important ally of the Turkish Nationalists in defeating the Greek Army in Asia Minor. The Turks were fighting on their native soil and were more resistant to the ravages of the malignant malaria epidemic in Asia Minor than were the invading Greeks.

The Germano-Bulgarian and Allied armies fighting in Macedonia during the Great War lost twenty men from malaria to one killed in action. Most of these soldiers came from countries where malaria was practically nonexistent and, when exposed to the disease, they contracted it in a violent epidemic and malignant form.

In the Near East Relief orphanages, careful charts have been kept on thousands of patients undergoing various types of quinine treatment. In a large group of cases, comparatively small doses of quinine have prevented relapses of the disease in children whose infection was not deep-seated.

Formerly it was thought that quinine was a specific poison to the malarial parasite, and cured the disease by killing the parasite. Were this a complete explanation, it would follow that big doses would be more effective than small ones. But this is not the case. There is now almost overwhelming evidence that quinine, after absorption by the human organism, is somehow modified by the body cells and thereby changed into a substance which is fatal to the malaria parasites.

Without doubt, Greece has been ravaged by malaria since antiquity. We have documents dating back to 500 B. C. from which it can be learned that certain parts of Ancient Greece were infested with an epidemic disease which judging by the description should be considered as malaria. Hippocrates, 400 B. C., clearly described the different fevers which correspond to the tertian, quartan, and certain comatose malignant forms of malaria. Also, we possess descriptions written by various doctors of Byzantine times which leave no doubt as to the existence of malaria in Greece in those days.

Malaria is endemic throughout Syria and Palestine. All types of the disease are found. Studies of malaria in Jerusalem made by the Near East Relief showed that 53 percent of all inhabitants under 5 years were infected; 30 percent of those between 6 and 10 years; 30 percent of those between 16 and 20 years; and 17.5 percent of those over 21 years. Sixty percent of the sufferers had the tropical (estivo-autumnal) type of malaria; 21 percent the quartan; 16 percent the tertian; and 3 percent were mixed.

At present, in certain parts of Georgia, ninety percent of the population are infected. Georgia has a population of two and one-half million and it is estimated that 800,000 suffer from the disease. Tiflis, the capital of Georgia, has 110,000 inhabitants of whom 97,000 are malarial. Among these the mortality is five percent annually. The number of sufferers in Armenia is estimated at 350,000 and in Azerbaijan at 800,000.

There are villages in Armenia and Georgia where no children under four years are to be found. Mothers realize that death awaits their children at the moment of birth.

Quinine is lacking everywhere in the Caucasus. In many places it can only be secured at exorbitant prices. The sick are

not treated. The governments of the various Caucasian states have not the resources to cope with the situation. In 1922 the government of Armenia distributed only a total of 120 kilograms of quinine or five grains per individual of the population. This was equivalent to doing nothing at all. Conservative estimates are that forty percent of the total population of the Caucasus suffer from malaria.

No single cause of premature death, of life-long misery, nor of loss of working power has ever equalled malaria. It is the greatest single element creative of ill health in the history of the Near East.

Malaria every year destroys a population equal to that of the largest city of the Near East,—say Constantinople or Cairo.

The chief agency which is endeavoring to combat these appalling conditions is the Near East Relief, from whose report most of the statistical material in this editorial has been taken, and they are constantly handicapped by lack of workers and by shortage of funds.

Think these things over some time when you feel dissatisfied with conditions in your locality and, if you want to let your interest take a practical form, these people have an office at 151 Fifth Avenue, New York City, and we feel sure they will be able and glad to suggest some way in which you can show how grateful you are for the labors and achievements of such men as Walter Reed, Gorgas, and the other heroes of medicine who have made America safe for Americans.

A diamond with a flaw is preferable to a common stone with none.—Chinese Proverb.

GOING ANYWHERE IN PARTICULAR?

Most of us are familiar with the story of the man who went into a railway station and, presenting himself at the ticket-window, addressed the clerk with the request, "Please give me a ticket."

"What station?" inquired the clerk.

"Well, what stations have you?" the uncertain traveler wanted to know.

Our first reaction is to say, "Preposterous! There never was such a fool!"

Stop a minute, though, and think it over. Was he such an *uncommon* type of fool?

We are all making a journey through life. There is a wide variety of stations at which a man may arrive if he starts out in the right direction and travels consistently. There are the States of Pro-

fessional Success, Social Success, Financial Success, Good Citizenship, Good Fellowship, Fame, Intellectual Progress, and many others; and in each of these States there are a number of stations toward which a man may journey.

How many men do you know who are perfectly sure *exactly* where they hope to arrive and who have, so to speak, bought a ticket for some *particular* destination?

After you have answered this question *honestly*, then answer the other about the foolishness of the *insouciant* traveler.

New Years resolutions come in for a lot of ridicule, these days. The so-called "funny papers" are full of side-splitting jokes about the man who threw his box of cigars out of the window on New Year's morning, and then sneaked out after dark to retrieve it from the trash can, and other stories of the same sort.

Of course, each morning is the beginning of a new week and a new year, as well as of a new day, and it doesn't really matter *when* you actually start a new page. We are, however, so accustomed to regulating our activities by the calendar that the first of January seems a satisfactory time for beginnings.

If you haven't actually picked out your station by this time, better study the time

tables a little and make up your mind where you want to go, because, if you are not headed for anywhere *in particular*, you will never arrive anywhere *at all*.

After selecting your destination, study the various roads that lead to it—as if you were starting out on an automobile tour—and devote all your energies to following *those roads and no others*. If you do this, you will be able to report *definite progress* by this time next year.

There is no call to advertise your new resolutions and purposes to your friends, nor even to your family. We all fail many, many times, and the less we talk the less will be the chance for our dear ones to say, "I told you so!" if we slip. Also, the less chance there is for us to be turned aside from our purpose by ridicule. Most of us talk too much, anyway!

Think this over, carefully and honestly, and if it sounds reasonable, nothing will be lost by *trying* it—and much may be gained.

In all our efforts, God bless us all and grant us, according to our deserts (there is no other standard!) a successful and prosperous and

HAPPY NEW YEAR



Leading Articles

Progress in Medical Education

A Report of the Meeting of the Association of American Medical Colleges, 1925
(In Two Parts)

By IRVING S. CUTTER, M. D., Chicago, Ill.

Dean of Northwestern University Medical School.

Part I

THE Association of American Medical Colleges held its thirty-sixth annual meeting under the auspices of the Medical College of South Carolina at Charleston, October 26-28, 1925. This Association, first organized in 1876 and later reorganized in 1890, has enjoyed a continuous existence since the latter date. To this Association is due—for the largest part—the distinctive position occupied by American Medical Colleges as progressive leaders in educational thought. For the past ten years the Association has devoted its attention to better methods in medical teaching; to reducing the specific requirements of the curriculum; to closer contact between student and patient and to other important pedagogical problems.

The Charleston meeting followed the pedagogical trend of the past few years and the papers presented mark distinct progress in medical teaching.

The committee appointed at the thirty-fourth session, held in Omaha, reported the organization of the Commission on a Survey of Medical Education. A preliminary meeting of the Commission held in Buffalo, early in October, resulted in the selection of President A. Lawrence Lowell, Harvard, as Chairman of the Commission. Dr. Willard C. Rappleye was appointed Director of Survey and Dr. Fred C. Zapffe, Treasurer. From various sources a fund of one hundred and twenty-five thousand dollars has been subscribed for the completion of the studies planned.

The first activity of the commission involves a study of the several lines of practice of the graduates of American medical colleges; the type of service that they are called upon to render to the public; the training which they must receive in order to render this service efficiently; the relation of the physician to public health ques-

tions, prevention of disease, etc. This study will also include data relating to the facilities which the physician requires in his work, such as laboratories, hospital beds, office equipment, etc.

The faculty of the Medical School and the medical profession of Charleston showed the visitors many courtesies. On one evening a reception was held at the Charleston museum, the oldest museum of natural history in America. On another evening the visitors were entertained by a Charleston society which has for its object the preservation of the old negro plantation melodies. A large number of selections were sung, exactly reproducing the religious fervor, melody and rhythm of the old negro spirituals.

Among the points of interest about the city were the Charleston Library, the Library of the Medical Society and Forts Sumter and Moutrie. The Library of the Medical Society is full of treasures and probably covers the period of 1760 to about 1830, better than any library now in America, with the exception of that of the Surgeon General.

Clinics and teaching demonstrations at the College of Medicine and Hospital occupied an entire forenoon and the laboratories of the School and wards of the Hospital were opened to the visitors.

Charleston, the Birthplace of Medical Science in America

The visitor could not revel in the library of the Medical Society (housed in the Roper Hospital) without appreciating the unusually rich medical-historical heritage that the city enjoys. There Dr. John Lining made the earliest meteorological observations published from America; conducted and published the first experiments in metabolism¹;

1.—Proceedings of the Royal Society, 1743.

experimented with electricity, and carried on a correspondence with Benjamin Franklin.

Dr. Alexander Garden, the popular society physician of his day, was also a distinguished scientist. His botanical work has been noted by Howard Kelley². He was elected a fellow of the Royal Society in 1772 and after his return to England (following the evacuation of Charleston, by the British) was elected its Vice-President. His publications in the proceedings of the Royal Society are numerous. Dr. Lionel Chalmers was the author of several medical works and a distinguished physician.

Dr. David Ramsay, a graduate of Nassau (Princeton) and later of the University of Pennsylvania (Medicine), served in the Continental Congress; as a surgeon to the Continental forces; was imprisoned by the British at St. Augustine for nearly a year and in later life devoted himself to historical narrative. His *History of the American Revolution* (2 vols.), *Life of George Washington* and *History of South Carolina* (2 vols.) are well known.

Dr. William Charles Wells was born in Charleston in 1754. He was for three years apprenticed to Dr. Alexander Garden, later taking his medical degree at Edinburgh. Wells remained an ardent Tory and left Charleston in 1783 after vainly endeavoring to retrieve his father's estate. He joined in London that choice group of physicians "The Society for the Improvement of Medical and Chirurgical Knowledge". Numbered among its members were John Hunter, Benjamin Brodie, Fordyce, Home, Gilbert Blane, Robertson Barclay, Patrick MacGregor, David Pitcairn and Dr. Lister. Wells was Secretary of the Society which disbanded only with his resignation incident upon failing health. A "dour" man; he was a keen observer describing rheumatic endocarditis and albumin in the urine in dropsy. He won the Rumford medal through his essay on Dew.

Charleston, in a sense, may be termed the birthplace of science in America.

The sessions were held in the Fort Sumter Hotel located on Battery Point, overlooking the bay and Forts Sumter and Moultrie.

Following are abstracts of the papers and addresses given at this session, which present a very clear survey of the thought of the leaders in medical teaching in America at the present time.

2.—Some American Medical Botanists, Howard A. Kelley, Troy, N. Y., 1914.

Should the Medical Curriculum be Importantly Recast?

"Address of the President"

By HUGH CABOT, M.D., Ann Arbor, Mich.
Dean, University of Michigan Medical School.

If one is inclined to be critical of the present state of the curriculum in medicine and, particularly, if one tends to be iconoclastic, it is but respectable to acknowledge the debt which we owe to those who have brought medical education to its present high estate in this country. We are inclined to complain, and with reason, of the overcrowded condition of the curriculum, of the rigidity which arises from regulation, rule and law, but it may be doubted whether the present position could have been achieved without imposing these restrictions. All of them were certainly enacted in the desire to elevate a previously low standard and there can be no denying that they have had that effect. It may even be doubted whether a situation so satisfactory could have been achieved by any less violent methods.

The General Practitioner or the Group

But any attempt to specify the nature of the product of medical education must take into account not only what has proved desirable in the past but what is likely to suit the rather rapidly changing conditions of the present day. It is fairly evident that the supply of, and I suspect requirement for, the general practitioner as he existed a generation ago is rather rapidly falling off; that there is an economic element in this change I shrewdly suspect. I incline to doubt whether the product which was satisfactory twenty years ago will be able to cope with the conditions of the future. If this type of physician is to maintain his place in our social development, a somewhat different equipment will be necessary.

The rapid growth of knowledge in the field of public health and preventive medicine has thrown upon the general practitioner a requirement which has not existed even in the comparatively recent past. If he is to be, in fact the confidential adviser of the community, he must do so far more in the field of prevention and somewhat less in the field of cure. One suspects, therefore, that the modern product must be far better equipped in this respect than was his predecessor. Again, with the increasing complexity of economic and social conditions, a far wider knowledge of economics and sociology will be required. In a simpler

society the play of these forces was relatively limited. Today an important share of the problems which come to the physician have their background in economic and social conditions with which he must be familiar. It is even possible that a broader knowledge of history will be required if he is to judge with accuracy the background of the ills upon which he is asked to pass judgment. We shall, I think, do well to consider seriously whether the physician of the next generation will not require a far broader equipment in these fields than has been necessary in the past or is being offered at the present time.

But before leaving this question of specifying the product, it may be worth while to raise the question whether or not the physician of the future can in fact properly be described as a general practitioner at all. In this day of rapid economic change, an outstanding tendency of which is specialization and consolidation, we observe the development of groups as a substitute for the individual of a previous age. "Group medicine" in all its various forms is clearly an attempt to substitute the judgment of several, each reasonably expert in his field, for the necessarily more dilute wisdom of the individual. Now it is just conceivable that a generation hence the "group" will have taken the place of the individual; that the general practitioner will have passed into history and that any scheme which we may devise for turning out a well rounded individual who will attempt, in his own person, to be the purveyor of advice in the field of medicine will prove to have been a mistake. It is as yet too early to say whether this outstanding tendency of recent years will become the clear objective of the immediate future but it should, I think, be entertained as a possibility, perhaps not too remote.

But excluding this, for the moment, from consideration, we may properly assume that the product of the school for which we now attempt to lay out a plan must be a person of broad education, if anything more rather than less than has been given, even in the recent past; that he must know more history, sociology, philosophy, economics. It would, perhaps, be presumptuous to suggest to this gathering that these subjects are at times almost as important to the physician as a detailed knowledge of the so-called fundamental sciences of medicine, yet I am inclined to rate their importance high in view of the fact that something like half

of the problems which the physician must face are as yet unlabeled by science and have their roots in economic, social, moral,—even historic—conditions.

Preclinical Studies

Coming now to the so-called preclinical division, we see what appears to me to be the most crying faults of our present plan. By definition it is assumed to be a necessary precursor of the clinical division and, by inference at least, to be intended to lead the way toward that goal, but in our desire to improve our teaching in these fundamental branches and by virtue of the so-called concentration, we have erected barriers which are vertical and, to an extent at least, obstruct progress rather than facilitate it. The sciences tend to become segregated into compartments by these vertical barriers and by their very arrangement to defy sound laws of learning.

There can be no doubt of the value of the so-called concentration as an element in our progress to the present time. It unquestionably brought to the faculties of medicine more profound thinkers in these fields and has clearly developed a body of teachers probably not to have been had by any other method. It has served a most valuable purpose, but I am by no means sure that the arrangement has not to an extent outlived its usefulness. In many of the courses of the preclinical years an immense amount of sheer memory is required and these feats of memory are unintentionally rendered more difficult by the unnecessary isolation of these facts from their application. I think it could be readily shown that the lost motion during these years is greater than can be accepted as necessary. No one would assert or defend the proposition that the student must remember all or the major portion of the facts clearly placed before him but the proposition might, I think, be defended that the amount of actual loss which must be made up by a practical relearning of the subject is out of proportion to the amount of time spent.

Now it may properly be argued that one of the purposes of these years is to develop in the student a scientific attitude of mind. This may readily be admitted without carrying with it, as a corollary, the proposition that the acquisition of unrelated facts is an important element in developing the desired scientific attitude. I am by no means sure that it may not have precisely the opposite result. Feats of memory do

not, I think, tend to develop judgment and may even tend to stifle the not overdeveloped desire on the part of the student to use some part of his mind other than his memory. I believe that at least an interesting argument might be made upon the proposition that the present arrangement of the preclinical years tends to stifle independent judgment and kill initiative. If such an argument could be made even plausible it would go a long way to prove that the present method is undesirable for if one thing be more certain than another, it is that the physician, to fill his place in the community, must be accustomed to weigh evidence and to come to his conclusions, if necessary in the face of accepted opinion.

Intellectual independence is quite as important as intellectual integrity. Moreover, the plan of the concentration has made easier the very natural tendency of these courses to develop, not as prerequisites for an appreciation of clinical medicine, but as separate and isolated fields of their own. That this may profitably be the ideal of the teacher in these departments will be readily admitted but that it should be passed on to the student is somewhat debatable. We might, perhaps, properly assume that these subjects, to be of their greatest value, must be accurately correlated with the known facts of disease and that their relation should as far as possible at all times be evident.

Appalling feats of memory are probably essential in the acquisition of knowledge of these fields but under our present arrangement of vertical barriers, these feats become staggering in their isolation from their application. It cannot, I think, be successfully denied that the complaint of the clinician, that the students who come to him have forgotten most of their preclinical subjects, is valid but not more so than the complaint of the teacher of science that the clinician is too rarely able successfully to correlate scientific fact with clinical phenomena.

Tendency Toward Dehumanization

If the student, at the end of his preclinical years, did, in fact, bring with him a mind trained in science, I should be still more afraid that this would unfavorably affect his approach to patients. It is precisely because I doubt that our present plan does train him in science that I am inclined to regard it as tolerable. However, I suspect that it could be successfully maintained that the student at the end of his preclinical

years, which corresponds with many of our students to the period at which a bachelor's degree is being obtained by his brothers, is a less human person than the average. It is here, I think, that the German method of approach has done most harm. From them we have learned much of the use of the animal in the demonstration and investigation of scientific fact but with it has come a distinct tendency to translate the laboratory animal into the field of clinical medicine and confuse him with the hospital patient. It is at least worthy of consideration whether, as at present arranged, we do not with some success, dehumanize our students and bring them to their clinical studies ill trained as scientists and ill equipped in the humanities. At a period when they should have the broadest understandings and sympathies they, in some cases at least, tend to deal in abstractions and look upon their patients with intellectual curiosity rather than with appreciative interest. If the present arrangement is to be justified, a better case will, I think, have to be made for the present product.

Need for Study of the Normal

Leaving aside for the moment the possibility that the period of clinical study is far too short, there are certain other suggestions which the critical might make in regard to these years. As already pointed out, a large number and a considerable proportion of the people whom he will have to deal with as patients will have no disease upon which he can put a label and yet something nearly approaching the whole of his time is spent in studying evidence of disease. We hear much at the present time of the great desirability of periodic health examinations which will enable the man struggling in a complicated environment to have an inventory taken at regular intervals, but there is little in the present training of the medical student which would justify the belief that he would be capable of making such a study. He sees far less of the normal than of the abnormal and is likely to be a poor judge of the point, always difficult to establish, which marks the boundary of normal variation. A considerable proportion of the worst errors now made in surgical, if not medical, diagnosis is due to the failure to recognize the wide variations within which the human machine can continue to operate. In theory, at least, the student should, during his last years in the school, be concerned with the business of

correlating facts and making judgments, but there is little in his previous training which equips him to do either and he is far more willing to accept facts and attempt to arrive at an opinion by a simple method of addition rather than weigh these facts with anything approaching balanced judgment.

If we are inclined to be critical of the balance in the preclinical years, we must be equally willing to be critical of the balance in the clinical years. Our students certainly get too little of the normal, too little intimate contact with their patients and too little training or opportunity for study in the field of mental disorders. Equally certainly they get too little practical experience in the field of public health and preventive medicine. If we are in fact concerned to turn out those who will develop into satisfactory and successful general practitioners, something like one-third their time must be spent in study of normal people, in judging peculiarities of personality and advising in the prevention of disease and the control of infection.

The Curriculum Needs Revision

As the result of this brief, too dogmatic and perhaps iconoclastic survey, I am inclined to believe that important recasting of the curriculum should be undertaken. The premedical years are not well calculated to produce the result which all of us desire. They lack in broad educational training. Their scientific content is too little related to the field of medicine and the pressure under which the student lives is too low. As the result, he finds the plunge from the arts college into the medical school a difficult one and, too often chilled by the temperature, falls by the wayside. The faculty of arts is very properly not concerned to alter its presentation for some doubtful future purpose. The faculty of medicine is without authority and the student suffers. If, as is practically always the case, the student knows at the time he begins his premedical course that it is his intention to go from there to the medical school, such intention should be declared and provided for. He has committed himself to a laborious task and might begin those labors sooner rather than later. The pressure should be equal or approximately equal to that which he will later have to endure. The long summer vacation is an educational anomaly not easily justified when the long road is taken into consideration and due consideration given to the product for which the medical school will later be responsible.

Increasing the Usefulness of Examinations

By M. R. TRABUE, Ph.D., Chapel Hill, N. C.,
Director of Educational Research of the University
of North Carolina.

One of my students two years ago decided to find out how serious the disagreement would be among teachers of certain subjects in the accredited high schools of North Carolina¹. He selected a typical set of examination questions in each of three subjects and then selected from the papers written on each set of questions a representative set of answers written by a first-year high school pupil. These answer papers, which were chosen because they seemed to contain no unusual characteristics that would tend to cause disagreements, were mimeographed with the examination questions to which they supplied answers, and the entire set of materials was sent to the principals of the accredited high schools in North Carolina. Each principal was asked to have his teacher of first-year English read and mark the English paper, to get his teacher of General Science to mark the paper in General Science, and to instruct his teacher of first-year Mathematics to read and to mark the Mathematics examination paper.

Wide Variations in Marks

Sixty-five high schools sent in reports of the marks assigned to these papers. If we assume that 70 percent is the passing mark (and that is in these high schools the most common point for distinguishing those who pass from those who fail), the girl who wrote the examination paper in English would have failed in ten of the schools, although she would have passed in fifty-five others; the boy who wrote the science examination paper would have failed in sixteen of the schools, but would have passed in forty-nine; and the boy who wrote the mathematics paper would have failed in twenty-seven of the sixty-five high schools, even though thirty-eight of them would have passed him without question.

Three English teachers thought the English examination paper was worth a grade of 93 percent; but one rated it at 54 percent, and three others rated it at 65 percent. Two teachers of mathematics rated the mathematics examination paper at 94 percent; but one thought it worth only 42 percent, one forty-four percent, and

1.—L. R. Sides: "Scholarship Marks," *The North Carolina Teacher*, Vol. I, No. 7, p. 196.

another 45 percent. Five science teachers rated the science paper at 95 percent or above; but five other equally well-trained science teachers rated exactly the same answers to exactly the same questions as wrong less than 50 percent.

Success or failure in an examination given in an accredited high school in North Carolina seems to depend largely on who marks the paper. Similar studies during the past fifteen years have revealed the same kinds of disagreements in the schools and colleges of many different parts of the United States. Whether similar differences in marking standards would be found among the instructors in the medical colleges, I cannot say. I should not be surprised, however, if it were discovered that there are some rather wide differences in standards even among medical instructors.

The Short Answer Test

The "new-type" examinations or "short-answer" tests came into prominence through certain necessities connected with the World War. In attempting to adapt the so-called "intelligence tests" for economical use with large numbers of men the psychologists hit upon the scheme of presenting long lists of plausible statements from which the man being examined was to select those that were correct. The word "True" and the word "False" were printed after each statement and the recruit was asked to underline the one of these two words which best described the character of the statement. I have adapted an illustration from a recent examination at the College of Physicians and Surgeons of Columbia University.

Underline "True" or "False"

- | | | |
|---|------|-------|
| 1. The female mammary gland is situated in the deep fascia..... | True | False |
| 2. The axillary vein lies lateral to the axillary artery..... | True | False |
| 3. The rhomboid muscles are supplied by the posterior primary division of the fifth cervical nerve..... | True | False |

You will observe that no writing is required in such a test, which is, of course, an advantage to the student in that there is no danger of his being attacked by "writer's cramp". There are also great advantages to the instructor. One can secure an expression of the student's judgment or memory for a hundred or a hundred

and fifty different items in the same time required for obtaining ten or a dozen answers of the essay variety.

No equivocation is allowed by this type of test. The student's reply is either true or false. It is, of course, possible and advisable for him to make no reply if he is not sure of his information, but when a reply has been made it is perfectly clear to the reader without having to stop and ponder on the meaning of the writer's language and handwriting. The student studies the wording of the question where formerly the instructor studied the wording of each student's answer.

Although I should not now advocate the complete abandonment of the older exercises in which the student was asked to "discuss", "explain", "elaborate", "prove" and the like, I do recommend that medical schools experiment freely with the short answer examinations.

The Relative Value of Subjects in the Medical Curriculum

By CHARLES F. MARTIN, M.D.,
Montreal, Canada

Dean of McGill University, Faculty of Medicine,
Montreal.

I am more and more convinced that our medical schools suffer in a large measure for want of more highly trained, experienced teachers—men gifted to instruct with simplicity, to discern the student's needs, and his capacity intellectually to digest what he has been taught. It is the confusing introduction of nonessential details that so often renders the students unable to appreciate and retain what is of primary importance.

The rule, I believe, holds much more frequently in Europe than in America that the fame of individual teachers attracts students. Competitive teaching is always a salutary stimulus. The majority of students are, after all, destined for the practice of their profession; therefore, while they are being taught in simple fashion, their imagination should be stimulated—to make them thinking creatures, fit to approach their daily problems with an investigative spirit. No teaching is so easy as that which merely imparts information, and the unresourceful student likes to be spared intellectual effort.

The Specialties

Two agencies have created an abnormal condition which in no small way has embar-

rassed medical education for the undergraduate; viz., the growth and development of our hospital clinics and the closer association of the universities and hospitals.

The ever-increasing discovery of new methods and new appliances in the diagnosis and treatment of disease has created specialism; has so decentralized our hospital work that its effect has been simultaneously felt on our studies, large special clinics have been created, and from this, there has evolved the idea of teaching undergraduates in so elaborate a way as to interfere with the simpler teaching of major subjects. Thus there has slipped into the curriculum the long list of specialties for the undergraduate student. The student is already staggering under the load, and he should not be expected to acquire more than the merest introduction to any of those subjects included in the specialties. He should acquaint himself with the general principles and their application to general medicine and surgery. Time and space for details of this kind should be offered in the hospital year as an option or in a postgraduate school. The pendulum has swung already too far, and we should return to a reasonable *status quo ante* and remember that paramount importance attaches to medicine, surgery and obstetrics.

Now, while the specialists admit the inadequacy of time, there seems no abatement in the desire to cover a course of instruction far in excess of the actual needs. The ophthalmologists, for example, demand 60 hours in which to teach the undergraduate the principles of how to save the sight and to learn the simpler diseases of the eye. Doubting the wisdom of so much effort, I would delete most of such instruction and cut the time by half in undergraduate teaching, leaving the rest to optional courses in the hospital year or to postgraduate study. It is to be regretted that, in general medical and surgical clinics, so little is done to stress the application of such principles.

What applies to ophthalmology holds equally good for orthopedics, genitourinary diseases, neurology, psychiatry, and advanced pediatrics. It would seem far more important for the intelligent general practitioner to realize his limitations and leave to more experienced men the care of conditions to which experience alone can bring satisfactory results.

More General Principles Needed

The undergraduate course is not a finishing school. Rather it is an introduction to

the technic of practice, and a medium for developing in the general practitioner an inquiring mind which enables him to approach the problems of disease in an intelligent manner.

"Only as a physician does one become a physician," was said with very real significance as applying to the needs of modern medical education.

In our clinical years, then, let there be broader outlines of study, much more of general medicine, general surgery, and obstetrics. Let there be more of principles and less of details; more of social science and less of specialties. It is not necessary to see every disease to understand the practice of medicine. In the complete study of one disease over a period of weeks, one teaches more than in twenty clinics on different maladies. Such was the practice adopted by Sir William Osler, who, during one term, confined his clinics to the various phases of pneumonia; and what a fund of general information they afforded!

The Clinico-Pathology Conference

By DR. OSKAR KLOTZ, Toronto, Canada
Professor of Pathology, University of Toronto.

The objective of every teaching laboratory department in a medical faculty is the same—the inculcation of the scientific spirit with its methods of precision and a presentation to the student of the principles underlying health and disease so that he may intelligently address his actions to the sick and have a clear understanding of the clinical manifestations of disease. The methods of teaching utilized by the different departments to attain this end must necessarily differ and this is particularly true in the teaching of pathology wherein the subject for presentation not only demands a scientific mode of approach but also requires a clinical attitude for application.

The subject of pathology lies midway between the fundamental preliminary departments of the medical curriculum and the clinical study of the individual cases of illness. In pathology the student must have a thorough knowledge of his preliminary studies in anatomy, physiology and biochemistry and he must be ready to utilize the information gained from each of these departments so that he may recognize the deviations from the normal and understand the influence of each of these upon the well-being of each patient.

To assist in bridging the gap which falls between the teaching in the laboratory of pathology and that of the clinical departments, we have introduced in the final year of study the clinico-pathological conference. Our course in the medical school covers a period of six years, bacteriology being given in the third; general and special pathology in the fourth; postmortem pathology and the pathology of special systems (nervous, genitourinary, gynecology, bones and joints) in the fifth; while in the sixth year we round off our studies by the conjoined clinic given by the laboratories of pathology in conjunction with the staff of the clinical departments.

Before, however, discussing the value of the clinical-pathologic conference I wish to emphasize that the most important phase of the teaching of pathology lies in the proper presentation of the principles of pathology. When a student has thoroughly grasped the various processes which may involve the tissues and organs in changing their functional character, he finds little difficulty in applying these principles to the diseases of various systems. It is essential that he master the fundamentals of pathology wherein he is able to utilize the knowledge gained in anatomy, physiology and biological chemistry. The succeeding course in special pathology then becomes much easier and he can quickly familiarize himself with the most important pathological processes arising in various parts of the body.

Pathology in the Clinic

There has always been an urge upon the part of the clinical departments that the student should be familiar with all the phases of pathology before he enters upon the clinic. This, as we are well aware, is impossible to carry out with our present curriculum, nor do I deem it wise to attempt to segregate too abruptly the training that he receives in pathology during the time that is spent in the ward. Hence we find that there is a time period in the curriculum which can not be wholly adapted to the desire of the student, the clinician and the laboratory instructor, but there must be a dovetailing of our efforts and the gradual ascension in the presentation of the most fundamental principles of our subject until we are able to arrive at that point when the student is able to logically interpret his clinical findings with the knowledge gained in the pathological laboratory.

It is wholly improper to attempt to elucidate the principles of pathology by concentrating upon one anatomical system alone or upon some given clinical disease. The viewpoint which would thus be gained would be much too narrow and would tend to concentrate too great an attention upon the fundamental characteristics of pathological processes as illustrated in that one disease alone. Hence, it is necessary to stress the importance of the early training which the student receives in his instruction in pathology leading up to the more special work which comes after.

During the last or sixth year in the medical school our student spends almost all his time in studying the cases in the wards. By this time he has received his instruction in physical diagnosis and is able to appreciate the characters of the clinical manifestations of the commoner diseases. To maintain his interest in the scientific interpretation of the disease, the clinico-pathological conference serves very well, not only to refresh his memory of the probable organic changes occurring in various tissues but also to have him understand disease complexes from the standpoint of pathological physiology.

These conferences are held once a week and during the year we attempt to cover the commonest diseases which he encounters in practice. On some subjects, as for example pulmonary tuberculosis, we spend two or three sittings so that we may more adequately discuss the different forms of human tuberculosis. This is also true with the discussion of heart and kidney disease.

At these conferences there are present representatives from different departments, depending upon the interest which the subject matter may elicit. Thus, anatomy, physiology, chemistry, bacteriology, pathology and the several clinical departments may be brought together to present the salient points bearing upon the problem. Not uncommonly we ask one of the students to present the anatomical and the physiological aspects and this is then followed by the presentation of the bacteriological and pathological phases of the discussion. The clinician presents his subject briefly and to the point, drawing from the antecedent presentations such points as have a bearing on the clinical diagnosis. Thus the entire presentation of the subject is of the nature of a symposium wherein the latest information concerning the problem of the

particular disease is brought to the attention of the student.

Following these brief presentations, which in all should not occupy more than forty-five or fifty minutes, the subject is thrown open for questions and discussion wherein the students participate. This discussion usually lasts for one-half or three-quarters of an hour and by the conclusion of the exercise, we find that the subject has been very well covered. These exercises are sometimes accompanied by the demonstration of fresh or museum specimens, charts and statistics, along with some lantern slides.

We have found that the students are quite enthusiastic respecting this course and they find that it gives an opportunity of more clearly coordinating an understanding of the integral parts of our knowledge con-

cerning the common diseases. It is probable that there is but little new material brought to his attention but the student finds that it is the only occasion where he is able to round off the problem in an understanding of the importance of the fundamental subjects as applied to the clinical study of disease. For him it is a new method of presentation and when a subject is brought to his attention from the diverse angles of different departments, he realizes more fully the value of medical cooperation. The discussions which attend the close of the presentation by the various departments are likewise of great value in training the student to think of the bearing of various aspects in the study of disease which is not gained when viewing it in the light of a single department.

(To Be Concluded)

Modern Therapeutics in Pediatrics

By LOUIS W. SAUER, M.D., Evanston, Illinois

NO BRANCH of medicine has shown more progress in the past few years than has pediatrics, especially is this true of that rapidly growing domain known as "preventive" pediatrics. Not only physicians but parents, as well, realize that it is far easier and more rational to prevent the more frequent, serious diseases of infants and children than it is to attempt their cure.

Prophylactic medicine is reaching its highest degree of perfection in the modern methods of infant feeding, in the prevention of the disorders of the newly-born, and in the prevention of contagious diseases. The maintenance of a breast-milk supply, the prevention of diarrhea, weight loss, rickets, scurvy, measles, diphtheria, and scarlet fever now constitute a vast part of the pediatrician's daily work, and in the immediate future the general practitioner will be called on to aid in this great movement of preventive medicine. The slogan of today is: Keep the well child well.

Breast Milk

All physicians are convinced, and most parents agree, that the normal infant should gain in weight consistently each week. Mothers no longer need persuasion to nurse their babies as long as there is any breast milk available. They realize that this natural food is very desirable, at least during the first few months of an infant's life.

Very few hesitate to make use of every effort to maintain or reestablish a waning milk supply.

It has been demonstrated that, to completely empty each breast, at least three times in twenty-four hours; to follow each nursing by manual expression of the breasts; or to apply the electric breast pump, when the supply is inadequate, will have a beneficial influence on the amount of milk production. The standard technic for manual expression of the breasts is as follows:

- 1.—Firmly press the ball of the thumb and index finger against the breast on opposite sides of the nipple just outside of the pigmented area;
- 2.—Maintain the pressure but bring the thumb and index-finger toward each other, back of the nipple base;
- 3.—Pull forward and release the pressure, whereby the milk flows out.

A repetition of these three movements, fifty or more times after each nursing, will often increase the supply within a few weeks.

Complemental Feeding

As soon as a young breast-feed infant fails to gain at least six ounces a week, the cause should be ascertained. If the physical, blood, urine and other examinations of a nonthriving, breast-fed infant

under ten pounds in weight reveal nothing abnormal, weighings before and after each nursing should be instituted for two successive days. If the total for twenty-four hours is found to be deficient, enough of a properly prepared milk mixture should be given after any or all nursings to total the amount required to accomplish a satisfactory weekly gain. As the tolerance for artificial food in young infants varies greatly, especially during warm weather, the greatest care must be exercised on the part of the physician as colic, vomiting and diarrhea are very likely to occur if the food is of improper quality or quantity.

Many leading clinicians now use lactic acid milk, protein milk (powdered protein milk), and dry milk, as these foods are more likely to be well borne by the young infant than are any other substitutes for breast milk. Many premature infants (over five pounds) will do well on such artificial foods. Probably the simplest and safest of these foods is the powdered protein milk.

In case there is no breast milk available, the guiding rule is to use one level tablespoonful of the powdered protein milk for every pound the infant weighs, to which is added twice as many ounces of water and one or more level tablespoonfuls of some carbohydrate. If weighing before and after nursings reveals that the infant secures half as much milk as is necessary, then only half as much complemental food should be prepared each for twenty-four hours. For example, a six-pound infant obtains in twenty-four hours but six ounces of breast-milk (the guiding rule for nursing infants is: two ounces of breast-milk for every pound of weight in twenty-four hours; i. e., a six-pound infant requires twelve ounces of breast-milk). If this six-pound infant obtains but six ounces from the breasts, then the complemental food should consist of:

3 level tablespoonfuls of protein milk powder

6 ounces of warm water

1 tablespoonful of carbohydrate.

One ounce should be given after each nursing.

As the child gains weight, the amount of complemental food should be increased, provided periodic weighings show that the amount of breast milk has not increased.

When the infant's weight reaches ten pounds, the child will usually thrive on a properly prepared cow's milk mixture. This is best prepared with skimmed milk during

the first week of transition; then whole milk, properly diluted and boiled will seldom cause disturbance. The guiding rule for cow's milk formulae is: one and a half ounces of milk for each pound of weight in twenty-four hours. For example, a ten-pound infant, entirely on artificial food, will usually thrive on a mixture prepared as follows:

Milk fifteen ounces

Water fifteen ounces

Carbohydrate 3 level tablespoonfuls

Boil five minutes in a single boiler;

Give five ounces in six feedings.

Infants partly on the breast require proportionately less complemental food, governed by the amount of breast-milk they obtain.

Infants entirely on artificial food should receive a tablespoonful of orange juice daily in order to prevent scurvy.

Rickets

This nutritional disorder often begins relatively early in life and becomes more manifest as the infant grows older because the very factors which cause this disorder are not removed, but are allowed to act on the child. It is due to an insufficiency of antirachitic vitamins in the ration and to a lack of sunshine. The diet of expectant and lactating mothers must include ample amounts of wholesome milk, butter, green vegetables and fruits, and they should daily indulge in exercise in the sunshine. Infants, especially the artificially fed, should get well-balanced diets and increasing amounts of cod-liver oil. Cod-liver oil should always be begun within a week after artificial food is resorted to. Many breast-fed infants also require cod-liver oil.

Sunshine is of inestimable value in the prevention and cure of rickets. Sun-baths should be given to infants and young children on warm days as a part of the daily routine. As the child becomes accustomed to the sun-bath, the duration may be increased from five to thirty minutes. The eyes and head should be protected and the entire body exposed. On the hottest days of summer sun-baths should be given before eleven a. m. and after three p. m.

Contagious Diseases

Measles, diphtheria and scarlet fever are now preventable. As measles may prove to be serious during the first few years of life, infants (more than five or six months old) and delicate young children should be immunized whenever exposure occurs. By

the intramuscular injection of 5 Cc. or more of blood serum from a child who has completely recovered, the disease can be prevented (or at least attenuated) provided the injection is given within four days after the actual exposure. It is important that the donor be free from tuberculosis and syphilis.

Many American municipalities have taken active steps toward the eradication of diphtheria. The Schick test detects susceptibles. It is usually positive in children under the school age. Three toxin-antitoxin injections (given one or two weeks apart) confer immunity. It is advisable to repeat the Schick test five months after the last toxin-antitoxin injection to prove the existence of immunity. Investigations have shown that the children of the well-to-do are very much more susceptible to diphtheria than are those living in the congested parts of our cities.

As a word of caution it is necessary to state that this prophylactic measure usually sensitizes the child to horse serum for many years, and the subsequent administration of any kind of antitoxin (for tetanus, meningitis, scarlet fever) is often followed by more or less severe anaphylactic reactions.

After twelve years of painstaking, laborious research Drs. Dick and Dick have

solved the scarlet fever problem. They have shown that a certain strain of hemolytic streptococci causes this disease. The laws of Koch have been fulfilled. Furthermore, they have isolated a true, soluble toxin, produced by this streptococcus. Proper dilutions of this toxin, injected intracutaneously, will detect susceptibles. Five subcutaneous injections of increasing amounts of the toxin (given a week apart) will usually confer immunity. By the injection of the toxin into horses a true antitoxin has been obtained and patients suffering from scarlet fever can profitably be injected with such horse serum. It is advisable to administer the antitoxin early in the disease, in sufficient amount, and to inquire beforehand whether the patient has previously had diphtheria toxin-antitoxin or any other preparation of horse serum, as anaphylactic reactions may occur.

It is hoped that this brief review of the more important prophylactic measures now at our command in pediatrics will prove the worth of the old adage: "an ounce of prevention is worth a pound of cure." Putting into practice the various preventive measures above outlined will doubtless prevent much needless suffering, disease and death.

Progress in Chemotherapy

By GEORGE W. RAIZISS, Ph.D., Philadelphia

Professor of Chemotherapy, Graduate School of Medicine, University of Pennsylvania.

THE introduction of arsphenamine and its derivatives in the therapy of syphilis constitutes a high degree of progress not only in methods of treatment but in the general development of chemotherapy. Lues is a very serious malady, causing profound pathological changes. As Hazen properly states, syphilis is not a benign disease and many deaths occur as the result of it. It causes much suffering to the patient and entails great financial loss to the state which maintains institutions where many syphilitics are confined. It is no wonder, therefore, that the discovery of arsphenamine, the most potent remedy in the treatment of syphilis, was hailed as one of the greatest achievements in medicine. It immediately placed chemotherapy in the foremost ranks of experimental science.

Progress with the Arsphenamines

All syphilologists agree that the arsphenamines are the most powerful antisiphilic available. They are far superior to other compounds in the rapidity with which they control active symptoms, in their effect on the Wassermann test and in their high affinity for spirochetes. Nevertheless, despite their signal service, further progress in chemotherapy is eagerly awaited.

The arsphenamines belong to the group of trivalent organic arsenicals containing the important arseno group $As=As$, which is easily oxidizable. This instability of the chemical molecule is probably the cause of the so-called "reactions". In some cases these reactions are a source of grave concern both to patient and physician. We are referring to the "nitritoid crisis" and ex-

foliative dermatitis, both of which sometimes end in death. Obviously, the toxicity of the existing group of arsenicals calls for improvement; and not only the toxicity but the therapeutic potency as well.

The hope that arsphenamine would completely solve the problem of syphilis has not materialized to the extent anticipated by its discoverers. The idea of "*Therapia magna sterilisans*", i.e., of ridding the body of parasites with one or very few intravenous injections, is still unrealized. Praxis requires prolonged treatment.

No doubt the pre-arsphenamine era never witnessed the brilliant results we achieve today; and it is also true that the mortality due to syphilis is much lower now than it was ten to fifteen years ago. Nevertheless, there is an unsatisfactory side to arsphenamine therapy, which becomes apparent when treating so-called Wassermann-fast or arsphenamine-resistant cases.

Intensive antisyphilitic treatment results not only in a disappearance of lesions and other visible manifestations but in a change of blood Wassermann from positive to negative. The greatest number of such reversals occurs in the primary and secondary stages. But there are patients who remain Wassermann-fast even in these stages. In the tertiary stage, Wassermann-fastness is, of course, much more frequent. As a rule, no patient can be considered more or less safe from the danger of relapse until the Wassermann has been reversed to negative.

Wassermann-fastness, according to leading syphilologists, is not altogether the result of drug insufficiency. It may be due to the peculiar type of spirochete causing the infection or to some unknown biologic phenomena which prevent the drug from developing its full therapeutic efficiency. Nevertheless, we believe that the improvement of arsphenamine (or its derivatives) by further modification of its chemical constitution would help materially in doing away with Wassermann-fastness. It might then succeed in penetrating to the central nervous system in large enough quantities to destroy all the parasites imbedded there.

The shortcomings of the arsphenamines, as outlined above, have led chemotherapists and syphilologists within the last decade to attempt the elaboration of new antisyphilitic remedies. But it must be admitted that, despite repeated, earnest endeavors, arsphenamine and its derivatives still maintain their supremacy. No new

preparation has ever rivaled them in low toxicity and high therapeutic efficiency. However, it is interesting to review briefly the various attempts at replacing the arsphenamines by other drugs.

Neoarsphenamine and Sulpharsphenamine

Neoarsphenamine, a derivative of arsphenamine, is now being used much more extensively than the parent compound. It is easily soluble in water and requires much less preparation for intravenous use (arsphenamine must be carefully neutralized before injection). But more important still, neoarsphenamine gives rise to fewer reactions. It is safer than the parent compound and yields almost as good therapeutic results.

An arsenical derivative recently added to the therapy of syphilis is *Sulpharsphenamine*. It is the disodium 3, 3'-diamino-4, 4'-dihydroxyarsenobenzene-N, N'-dimethylene sulfonate. It is prepared by treating arsphenamine with formaldehyde and sodium bisulfite. Sulpharsphenamine is less oxidizable than neoarsphenamine, but its trypanocidal action is inferior. The advantage of this preparation over arsphenamine and neoarsphenamine consists in its being less painful when administered by the intramuscular route. Administration of the two older arsenicals by this route is very painful.

That sulpharsphenamine is a curative agent of value has been demonstrated, but it does not fully compare with arsphenamine or neoarsphenamine in efficiency. Stokes and Behn,²¹ however, find that sulpharsphenamine has as marked a therapeutic effect as arsphenamine and neoarsphenamine. They recommend the product for the intramuscular route only. But care must be exercised to avoid possible reactions since the incidence of exfoliative dermatitis is more frequent after sulpharsphenamine than after arsphenamine and neoarsphenamine. This preparation is particularly valuable when intravenous injections of arsphenamine and neoarsphenamine cannot be given and the intramuscular route must be resorted to. Some investigators claim that this compound has a superior penetrative power and can therefore be used with greater advantage in cerebrospinal lues or neurosyphilis in general.

Sulfoxyalsalvarsan, elaborated by Kolle²² et al., is a pyrazolon derivative of arsphenamine. Its chemical name is para-arsenophenyldimethylaminopyrazolonsulfoxylate¹. According to Kolle, it is less oxydizable than

²¹Successor to Ehrlich as director of the Institute of Experimental Chemotherapy in Frankfurt a. M.

neoarsphenamine, does not change in water solution when in vacuo, and remains longer in the body than the other arsphenamines. He considers this preparation particularly suitable in late syphilis. Syphilologists, however, do not seem to value it higher than neoarsphenamine.

Arsphenamine Glucosides and Compounds

Within recent date, chemotherapeutists have elaborated combinations of arsphenamine and glucose (arsphenamine glucosides). Such preparations are *Glucarsenan* and *Eparseno*. The chemical name of glucarsenan, as given by Aubry and Dormay, is diglucosodihydroxydiaminoarsenobenzene². *Eparseno*, produced by Jeanselme and Pomaret in 1922, is described by them as a condensation product of glucose with aminoarseno-phenol, the arsphenamine base³. There is a difference in the constitution of these drugs, eparseno being far more stable than glucarsenan. It is claimed that the addition of glucose lowers the toxicity of arsphenamine materially. *Eparseno* and glucarsenan are consequently said to be less toxic than arsphenamine. Our own investigations show that an addition of glucose results in a considerable diminution of the therapeutic effect. We therefore believe that such compounds are not to be preferred to the arsphenamines since the gain in lower toxicity is overbalanced by the decrease in therapeutic efficiency.

Another method of improving the arsphenamines is by *activation*, i.e., by combining them with other metals. The purpose of such activation is to increase the spirocheticidal effect by combining two active spirocheticides. The explanation of this combination given by Ehrlich is that two or more elements, attaching themselves to different receptors of the parasite's protoplasm, will effect more complete destruction of the parasite. Others are of the opinion that the added metal acts as a catalyst. *Silver-arsphenamine*, elaborated by Kolle, (Germany) is such a combination. It has found use in practice, chiefly in Germany, although it does not seem to be superior to arsphenamine.

Experiments with arsphenamine in combination with *antimony* are being carried out by Uhlenhut and Leiffert, but valuable therapeutic results have not yet been obtained.

Last year Prof. Albert of the University of Munich, Germany, announced that he was working on a new spirocheticidal

arsenical called "*Albert 102*". The chemical composition of the drug has not been disclosed. Bauer⁴ writes that Albert worked with hydrazones, phenylhydrazones or semicarbazones of aromatic or aliphatic-aromatic aldehydes and ketones, which are substituted in the para position by arsenic and hydroxyls. The compound is stable (this having been one of the aims of the inventor), and its chemotherapeutic index is claimed to be higher than that of arsphenamine (1:15 or 20). It contains about 20% of arsenic and is quite effective in experimental rabbit syphilis. In human syphilis, however, it seems no more effective than arsphenamine, if indeed it is as effective as this arsenical. Kolle,⁵ after experimenting with this drug on animals, concludes that the worst arsphenamine is better than "*Albert 102*". To decide definitely on the value of this remedy we need more data on its influence in human syphilis*.

Stovarsol

Another arsenical for the treatment of syphilis, recently introduced by Fourneau and Levaditi, is *Stovarsol*** . It is a pentavalent arsenical compound the chemical name of which is 3-acetylamino-4-hydroxyphenylarsonic acid. The preparation has long been known, and its chemical properties have been studied by the present author⁶. But since Ehrlich and his school have pronounced pentavalent arsenicals inferior to the trivalent (to which arsphenamine belongs) this compound has, until recently, found no application in syphilotherapy. Lately, however, the drug has been reinvestigated by Fourneau, Levaditi and Navarro-Martin of the Pasteur Institute in Paris⁷, and introduced into practice. Reports on its effect in lues are contradictory. The belief that pentavalent arsenical compounds are less effective than the trivalent generally holds good. The main advantage of stovarsol is that it can be given per os. Much more favorable results with it are obtained in amebic dysentery.

Stovarsol has also been recommended as a syphilitic prophylactic. Although the preparation exerts some preventive influence in experimental rabbit syphilis, it cannot be urged as a prophylactic in human syphilis. Such a recommendation, unless based on absolute conviction of effectiveness, might

*There is a new modification of this compound called "*Albert 102S*", which is claimed to be more stable.

**It has been suggested that this drug be called Acetarsono, a name which will probably be accepted by the Council on Pharmacy and Chemistry of the A. M. A.

entail incalculable harm both to the individual and society.

A pentavalent arsenical compound elaborated in this country by Jacobs and Heideberger is *Tryparsamide*, the sodium salt of *n*-phenyl glycineamide-4-arsonic acid. Although not effective in the earlier stages of lues, it seems to exert some influence in neurosyphilis. However, further observations are necessary before reaching any definite conclusions. The unsatisfactory aspect of *tryparsamide* is its deleterious effect on the optic nerve, but this defect might be overcome by careful regulation of the dosage.

Elements other than Arsenic in the Treatment of Syphilis

Bismuth, introduced by Sazerac and Levaditi, a few years ago, has since become widespread in its use. Though not so powerful and swift in action as *arsphenamine*, it is much more effective than mercury. Indeed, it seems as if bismuth is about to replace mercury, in part at least, as an adjuvant to the *arsphenamine* treatment of syphilis.

Bismuth was first introduced in the form of potassium and sodium-bismuth-tartrate. This preparation, and potassium bismuth tartrate, introduced by the present author, still remain the most reliable bismuth compounds. The comparative effectiveness of the various bismuth preparations has not yet been established. Theoretically, the value of such a preparation depends on its bismuth content, but the possibility of the organic radical playing an important rôle must be carefully considered.

Uhlenhut and his collaborators have attempted to synthesize an organic preparation of *antimony* for the treatment of syphilis and diseases of kindred origin. Their first preparation, *Stibenyl*, (the sodium salt of *p*-acetylaminophenylstibonic acid) was changed to "Heyden 471" by introducing chlorine into the molecule. According to the inventors, the sodium salt of the *m*-chlor-*p*-acetylphenylstibonic acid proved to be effective in kala-azar, a fatal epidemic fever caused by a protozoan parasite called *Leishmania donovani*. The same authors recently tried trivalent instead of pentavalent antimony compounds. Knowing that trivalent arsenicals are more effective in syphilis than the pentavalent, they assumed the same to be true of compounds of antimony. They therefore introduced "Heyden 661", a pyrocatechol derivative of trivalent

antimony⁸. This preparation is effective in experimental trypanosomiasis in small animals, but very slightly so in human trypanosomiasis (African sleeping sickness). As stated above, Uhlenhut is also working on a combination of *arsphenamine* and antimony.

Vanadium, too, has recently been tried in Germany. Neuendorf (Halle, Germany) employed vanadium pentoxide and claims to have obtained good clinical results in secondary syphilis⁹. The drug, however, produces injurious by-effects. Kroesl (Innsbruck, Austria) found that sodiumorthovanadate exerts a favorable effect on the course of syphilis¹⁰. The spirochetes disappear after 2 to 4 intramuscular injections, but the Wassermann reaction changes more slowly than with *arsphenamine*. This drug, too, gives rise to reactions.

Cadmium, in the form of cadmiumsubsalicylate, has been suggested by Prof. Grouven (Halle, Germany) for combined use with *arsphenamine*¹¹. The results, however, do not seem to encourage the employment of this metal even as an auxiliary to *arsphenamine*. Levaditi, Nicolau and Navarro-Martin tested various cadmium preparations and came to the conclusion that cadmium "can be of no great use in the therapy of syphilis"¹².

The chemotherapy of syphilis thus lays claim to two achievements: the introduction of bismuth as an adjuvant and of sulpharsphenamine as an arsenical for intramuscular use. If the efforts with other drugs have thus far yielded no practical results they may ultimately lead to new discoveries.

The Chemotherapy of Trypanosomiasis

Treatment of human trypanosomiasis, an infectious disease caused by *trypanosoma gambiensi*, and of nagana, surra and other diseases in animals—infections caused by various kinds of trypanosomes—is no less vexing a problem than the treatment of syphilis.

Trypanosomes, like *spirocheta pallida*, belong to the protozoa. Many arsenicals, such as *arsphenamine*, *atoxyl*, etc., have therefore a marked effect upon them. *Atoxyl* has, until recently, been the drug of choice in the treatment of trypanosome infections, but its effectiveness is very limited. We have thus been powerless in combating these diseases.

In 1921, Heymann, Kothe and Dressel elaborated a new drug known as "*Bayer 205*", or Germanin, as it is now called.

Although its constitution is held secret, the French chemotherapeutist Fourneau succeeded in elaborating an identical product. "Bayer 205" is not an arsenical but a derivative of the dye trypan-blue. According to Fourneau it is the symmetrical urea of sodium - m - aminobenzoyl - m - amino - p - methylbenzoyl - 1 - naphtylamino - 4 - 6 - 8 - trisulfonate.

An expedition was sent to Africa to test the drug in human and animal trypanosomiasis. The report of the expedition is now available¹⁴. In man, the drug has an excellent effect in the early stage of the disease, one injection often achieving curative results. But it fails in the late stage when the nervous system has become involved. In this respect "Bayer 205" resembles arsphenamine which is also more limited in neurosyphilis than in the other stages of lues. It seems as if drugs are almost incapable of reaching the protozoan microorganisms after they have penetrated the nervous tissues. There is a barrier our drugs cannot pass, but, unfortunately, the same barrier is no obstacle in the way of the parasites. In animal trypanosomiasis, strangely enough, "Bayer 205" has very little value.

The American preparation "Tryparsamide" seems to possess fairly good trypanocidal properties. It is being extensively tried in Africa with good preliminary results¹⁵.

The Chemotherapy of Bacterial Infections, Particularly Tuberculosis

We have seen the achievements of chemotherapy in syphilis and trypanosomiasis, achievements of which this new branch of science may well be proud. Unfortunately, chemotherapy cannot boast of similar attainments in tuberculosis and other diseases of bacterial origin.

In 1924, Prof. Møllgaard, of Denmark, introduced *Sanocrysin*, a new gold preparation for the treatment of tuberculosis. That gold has some effect in tuberculosis has been known for a long time. After the discovery of the tubercle bacilli, various heavy metals were tried on the parasites in vitro and in vivo. It was observed that gold alone was of some value, but no efficient compound was prepared. Krysolgan (sodium salt of p-aminorthoauoro-phenol-carbonic acid), elaborated by Feldt (Germany) in 1917, is only of limited value in some forms of the disease. Following this drug came sanocrysin which is sodium auro-

thiosulphate. It seems to be slightly superior to Krysolgan but still very far from a specific remedy. According to Møllgaard "sanocrysin causes typical productive tuberculosis in the earliest stage to heal with sclerosis and calcification. Cases of acute, extensive and miliary tuberculosis of the lungs can be brought to a condition of clinical healing"¹⁶. Few, however, share the author's enthusiasm.

To control the reactions to which the drug gives rise, Møllgaard administers simultaneously with the remedy a specific antitoxic serum, although he regards these reactions as a sign of the effect of the drug on the tubercle bacilli, the preparation eliciting no response in a nontuberculous body.

Another gold preparation recently introduced is *Triphal*, the sodium salt of aurothiobenzimid-azolcarbonic acid. The therapeutic value of this drug is still unknown.

Experiments with *copper* in tuberculosis are being carried out in Italy but no practical results have been achieved.

Local and General Antiseptics in the Treatment of Septicemia

The bactericidal drugs elaborated in the last few years belong to various groups of chemical compounds: Dyes, mercurials, silver, phenolic preparations, etc.

Dyes

In 1921, Morgenroth, Schnitzer and Rosenberg (Inst. for Infectious Diseases "R. Koch", Berlin) elaborated a new bactericidal substance called *Rivanol*. It is a salt of 2-acetoxy-6,9-diaminoacridin, of the group to which Trypaflavin or Acriflavin belongs. According to the authors, Rivanol is a strong bactericidal preparation, killing streptococci in vitro in a dilution of 1:100,000. Staphylococci are destroyed in vitro in a solution of 1:20,000. The authors also maintain that it is a good antiseptic for the treatment of deep wounds and abscesses. At first high hopes were entertained of the drug; indeed, it was proclaimed a pantherapeutic preparation. But these early expectations have not been realized.

Flavacid, recommended by Langer, is 2,7-dimethyl-3-dimethylamino-6-amino-10-methylacridinium chloride. The author asserts that it is 5 to 10 times the strength of Acriflavin and less toxic¹⁷.

Combinations of acriflavin with metals have been tried by Leschke and Berliner (Berlin University Clinics). They recommend *Argo-flavin* (acriflavin plus silver) as

superior to the colloidal silver preparations¹⁴.

Mercurials

In elaborating mercurials the aim is a preparation which, in addition to being bactericidal, could be used intravenously in syphilis and septicemia. The inorganic mercury salts are too poisonous for this purpose.

Flumerin, prepared in this country by White, Hill, Moore and Young, is recommended for intravenous use in syphilis¹⁵. It is a dye containing mercury (hydroxy-mercurifluorescein). According to Moore and Wassermann, the drug is effective in all stages of lues¹⁶. Its use, however, is rather limited and its superiority not sufficiently proven. A similar preparation, known as *Tachysan*, was recently developed in Germany by Stuemmer¹⁷. It contains about 50% of mercury and, according to the originator, possesses a high therapeutic index. But this claim has not been substantiated by other investigators.

Cyarsal was elaborated in Germany by Oelze (Univ. of Leipsic) and recommended for the intravenous treatment of syphilis. It is the potassium salt of a nuclear mercurated oxybenzoic acid, containing about 46 percent of mercury¹⁸.

A mercury dye-stuff belonging to the same group as *Flumerin* is *Mercurochrome*, elaborated in 1919 by Young, White and Schwartz. It is the disodium salt of 2,7-dibromo-4-hydroxy mercurifluorescein, and is recommended as a general antiseptic and for use in the genitourinary tract. It has also been successfully employed in several cases of septicemia. It contains 26% of mercury and, according to experiments of the present author, kills staphylococci in a one-hour exposure in a dilution of 1:4500*.

In 1919, Raiziss, in collaboration with Schamberg and Kolmer, developed *Mercurophen* which is sodium hydroxymercuro-ortho-nitrophenolate¹⁹. It contains 53% of mercury and destroys staphylococci in a one-hour exposure in a dilution of 1:81,000. The drug is recommended for use in gonorrhea and as a general antiseptic. The point of chemotherapeutic interest illustrated by this preparation is that the nitro group, which as a rule is dystherapeutic (Ehrlich, Raiziss), becomes eutherapeutic and much superior to the amino radical when introduced into the benzene ring of an organic mercurial compound.

With this fact in mind, Raiziss and Severac began an investigation of mononitroresols and in 1923 elaborated *Metaphen* which is 4-nitro-3,5-bisacetoxy mercuri-2-cresol²⁰. It contains about 56% of mercury and remains effective against staphylococci exposed for one hour in as weak a dilution as 1:170,000. Because of its powerful germicidal properties, it is very effective as an antiseptic, in general surgery, and in the treatment of gonorrhea and other urinary infections. Its strong spirocheticidal powers make it valuable intravenously in the treatment of syphilis.

Another drug lately developed by Raiziss, Fisher et al., of the Dermatological Research Laboratories, is a mercury derivative of a tetraazo dyestuff, benzopurpurine 4B. It is known as *benzurine* and is the dihydroxymercuri derivative of the dye. It has proved to be very effective in experimental septicemia in animals, the percentage of cure (24 animals) being 70. With metaphen the percentage of cure is 60 (10 animals) and with another well-known drug 35 (20 animals). The drug is now under further observation.

Silver Preparations in Gonorrhea

Within the last few years, chemotherapeutists have been paying special attention to the treatment of gonorrhea. The many preparations that have been elaborated kill gonococci in vitro but not one of them has proved a specific remedy in gonorrhea. For a drug to be effective in this disease it must be as nonirritating as possible. Most remedies, however, to be nonirritating, must be reduced to such weak solutions that they lose their germicidal power. Some, too, precipitate albumin and others do not penetrate deeply enough to reach the gonococci.

While this country saw the elaboration of mercurials for the treatment of gonorrhea, Germany, following the suggestion of Neisser, continued producing silver preparations. In 1923, Siebert and Cohn introduced *Targesin*, a complex, colloidal silver compound, containing, in addition to 6% of silver, tannin and albumin²¹. It is claimed that the drug acts as an astringent without precipitating proteins. Clinical observations seem to confirm the assertions as to the effectiveness and slight irritating qualities of this remedy.

Another German silver preparation is *Acykal* elaborated by Prof. Bruck²² (Altona, Germany). It is a complex compound of silver cyanide and potassium cyanide.

*In these experiments mercury chloride, containing 44% of mercury, was effective in a solution of 1:106,000.

About two years ago *Reargon*, a combination of silver and glucosides, was elaborated by Klausner and Wiechowski (German Univ. in Praha, Czechoslovakia) and recommended as a nonirritating and very effective remedy in gonorrhea²⁸. The drug was received in Germany with enthusiasm, and it really seemed to possess advantages over the older silver preparation. But unsatisfactory reports soon made their appearance. Muehlhof²⁶ and Nagel²⁷ sound a special warning against abortive treatment with *Reargon*. These authors have just reported an improved silver glucoside preparation, *Neoreargon*, which contains 15% of silver and 63% of anthrachinonglucoside against the 6% of silver and the 50% of anthrachinonglucoside contained in *Reargon*. This increase in silver ions, they think, will yield better results than those obtained with the parent product. Whether these expectations will be realized remains to be seen²⁹.

Urinary Antiseptics

A new urinary antiseptic, discovered in 1924 by Leonard (Johns Hopkins University), is *Hexylresorcinol*. It is claimed to possess bactericidal properties 45 times the strength of phenol, and exceptional stability in the digestive and urinary tracts. In therapeutic doses it is nontoxic in the human body. Leonard's experiments on man have shown that the preparation not only sterilizes the urine but actually causes it to become bactericidal toward *Staphylococcus aureus* and *B. pyocyaneus*. But it is more resistant to *B. Coli*³¹.

Salihexin, recently elaborated by Raiziss, Proskouriakoff and Severac, is a condensation product of acetaminosalicylic acid with hexamethylentetramine. As a urinary antiseptic the preparation has stronger disinfectant properties than salicylic acid and hexamethylentetramine. At the same time, it is less toxic than sodium salicylate. While the latter drug, in large doses, increases the blood pressure, experiments have shown that large doses of *salihexin* leave the blood pressure unchanged. The drug also possesses analgesic and antipyretic properties. It has a further advantage in that it can be given intravenously.

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The Henry Ford Hospital

By GEORGE B. LAKE, M.D., Chicago, Illinois

WHILE the Henry Ford Hospital, at Detroit, does not properly rank as one of our great medical centers, for the reason that little teaching is done there, it embodies, both in its construction and management, a number of ideas which are sufficiently out of the ordinary to merit thoughtful consideration.

The average hospital is a place where the average man goes only when he is *taken* there, and stays only so long as is impera-

two on the walls; and the furniture has a homelike look.

In every bathroom there is a complete unit equipment of utensils—bed pan, urinal, wash bowl and pus basin—and an arrangement for cleaning them, so that there is no carrying of these unsightly objects up and down the corridors to service rooms for cleaning.

All rooms are alike and all are arranged in precisely similar units of 24 rooms, for



The Henry Ford Hospital, Detroit

tively necessary. The idea of the Ford Hospital has been to develop an institution which would *sell itself* to the public, and with this end in view the parts of the building where the patients live are made as much like a first class hotel as possible.

The lobby is finished and furnished like a hotel lobby and there is a news stand and other familiar appurtenances—but no cigar stand! Smoking is prohibited throughout the hospital.

There is no "hospital smell" to be detected anywhere. The walls are finished in gray, instead of white, and the woodwork is walnut. All rooms are private rooms—there are no wards—and each room has its private bath, with hot, cold, and ice water on tap. There are rugs on the floors; curtains at the windows; a fine picture or

purposes of nursing and administration. These nursing units are arranged in groups of four, one above another, as diet-serving and dish-washing units. Mr. Ford has developed his passion for standardization even here.

The hospital itself is a self-contained unit, producing its own water, power, heat, light, etc., and doing its own laundry, baking and all other needful things.

The boilers are fired with oil, so that the stoke rooms are almost as clean as a kitchen. Not only is the whole institution (it covers 20 acres of ground) heated and lighted from a central plant, it is also *refrigerated* in the same manner, all refrigerators being connected with the central installation.



Lobby, Henry Ford Hospital.

There are four large and two small operating rooms, and all the rooms of each kind are arranged and equipped exactly alike, the only difference being in the wall finish, with which they are experimenting. So far they find that dull, moss-green tiles are most satisfactory. There are no arrangements for clinical teaching, except for those actually on duty at the time of operations.

For general anesthesia, ethylene gas is used almost exclusively, and is giving good satisfaction here. In the eye, ear, nose and throat department they use nothing but butyn for local anesthesia, both topical and by injection.

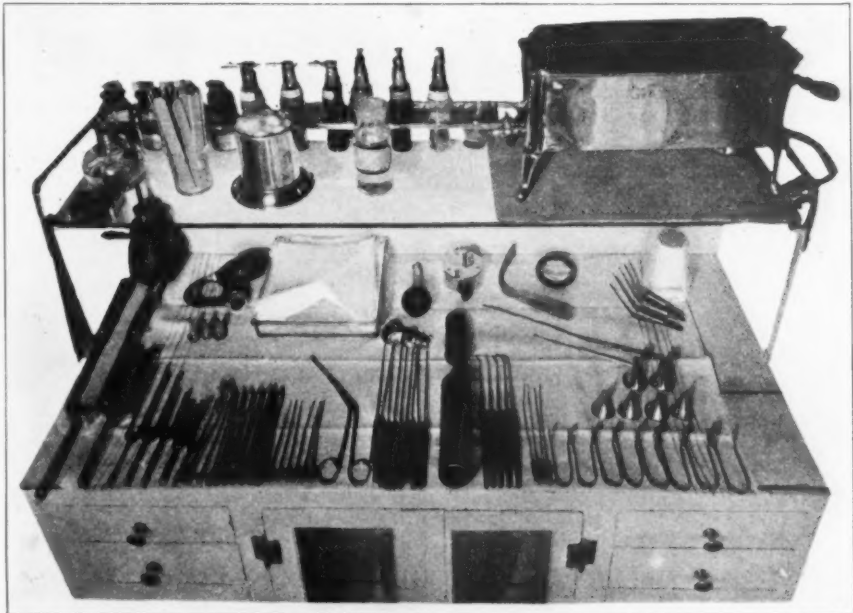
The clinics for the various services are elaborately equipped with every modern appliance, and wherever there are several men working in the same department, as in the nose and throat and the eye departments, each has identical equipment, so that no matter where a man may be working in his department, not only the instruments but even their *arrangement* on the tables is the same, so that he always feels at home.

If the hospital is elaborate in its appointments and equipment, the nurses' home and school is sumptuous. It was built as a memorial to Mrs. Ford, with the idea of making it a place where girls from even the finest families might feel at home.

Each nurse has a private room with bath, tastefully and beautifully furnished. For each 20 nurses there is a living room with a fully appointed kitchenette. There are music rooms, reception rooms, dressing rooms. Everything is complete and very luxurious.

In the school, the class rooms and laboratories conform to the most modern scientific and pedagogic ideas. This building contains a gymnasium and ball-room, a large swimming pool and many other unusual facilities.

The organization and management of the hospital offer many features of interest.



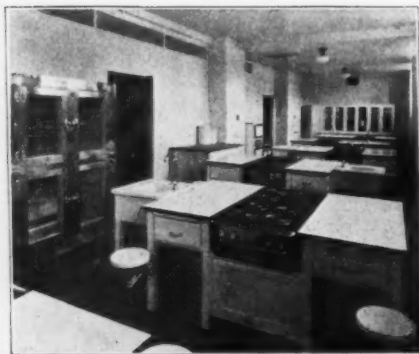
Unit Equipment for Ear, Nose and Throat Department.



The Equipment of a Patient's Room.

The staff is a closed one, all being on a salary basis. Outside physicians do not *bring* their patients here and care for them, though they may *send* them in for care by the staff. When discharged from the hospital they are returned to their own medical advisors.

The staff consists of 103 full-time, graduate physicians and 26 internes; 185 graduate nurses; 147 student nurses; and 36 technicians in the laboratories, physiotherapy rooms and x-ray department. This is a large staff for a hospital of only about 500 beds, and the personnel is of a high type and appears to be doing very superior work.



The Laboratory of Dietetics, School of Nursing.

The laboratories are carrying on a large amount of research work as well as handling the immense mass of clinical laboratory material.

This institution is not supported and receives no part of its support from the city, county, state or any outside agency whatever, being financed and maintained entirely by Mr. Ford and the members of his immediate family.

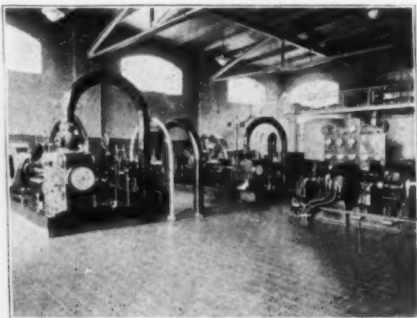
The idea of the establishment is to furnish high-class medical and surgical service to those persons who are able and willing to pay a reasonable fee for such service. There are no charity patients; and, on the other hand, no excessively high fees are charged. It is believed that such an institution should be self-supporting, but, so



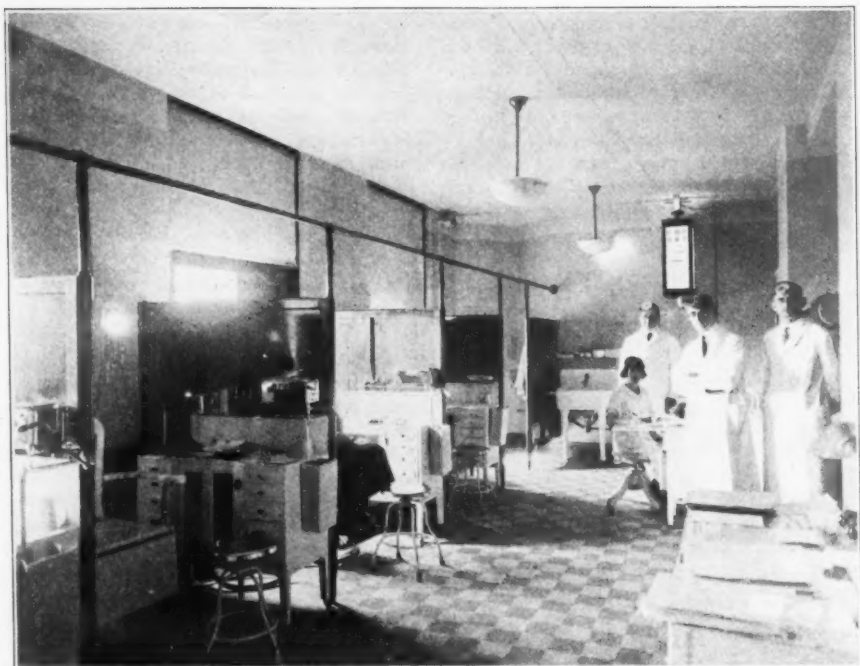
A Patient's Room.

far, it has not been so. The annual operating deficit of several hundred thousand dollars has been met by Mr. Ford.

The service of the hospital is divided into out-patient and in-patient. Out-patients pay \$10.00—*cash*—at the first call—\$5.00 for a general examination and \$5.00 for laboratory fees, and from \$1.00 to \$10.00—*cash*,



Central Refrigerating Plant.



Ear, Nose and Throat Department.

again—at subsequent visits, according to the services rendered. The out-patient department handles about 500 patients per day, of whom 50 to 60 are new patients.

In-patients pay from \$4.50 to \$8.00 per day for room, board and nursing service, and from \$21.00 to \$70.00 per week for pro-

days, and the average charge is about \$125.00 to \$150.00 for hospital and professional fees.

For major operations, of which they do about 150 per month, the patient is consulted before he enters the hospital and, with a month's income as a basis (maximum) the fee is *scaled down* for children or other dependents; for other sickness in the family; unusual expenses; and various other circumstances. The charge starts at about \$25.00 and never exceeds \$1000.00. Before



The Clara Ford Nurses' Home.

fessional services—according to the nature of the case—exclusive of operations.

All these fees, as well as those paid for surgical work, go to the *hospital* and not to any one physician, and are payable strictly *in advance*, by the week. A patient leaving in the middle of a week has the unearned payments returned to him. The average stay in the hospital is about 10



A Nurses' Station (for 24 rooms).

entering the hospital, every patient is told exactly what his entire expense will be.

In addition to professional service, the patients receive certain attentions which are enjoyed by the patrons of some of our best hotels. Daily and Sunday papers are delivered to every patient, and the Saturday Evening Post, on Thursdays, without charge. There are also available barber service in

the rooms; valet service; an up-to-date drug store; an optical department; and a telephone and telegraph room.

These are some of the striking features of a hospital which, under other circumstances, might be considered as an experiment, but Mr. Ford's financial condition is such that he is in a position to *make it succeed*.

Progress in Endocrinology

By J. H. HUTTON, M.D., Chicago

DURING the past few years, considerable progress has been made in our knowledge of the functions and disturbances of some of the glands of internal secretion, notably the pituitary, the thyroid, parathyroids, pancreas, and the liver. Less notable has been our advance in knowledge of the gonads and, in the case of the mammary glands, the thymus, and the pineal, practically no progress has been made.

The Pineal

Nothing important has been added to our knowledge of the pineal gland in recent years. We know that it has some influence over the growth and function of the somatic and sexual apparatus, but we are uncertain whether this is an inhibiting or a stimulating influence. Some writers claim to have obtained good results from feeding it to backward children, but most men have seen no results follow its administration.

The Pituitary

About five years ago Engelbach and Tierney published their classification of pituitary disturbances. This was based on the different functions of the two lobes and the pars intermedia, as revealed by experimental evidence and clinical observation. While the ideas advanced by them were violently opposed by some members of the profession, they were generally held to be a distinct advance in our conception of this gland and its disturbances. Experimental evidence brought forward since that time has tended to substantiate the position of these clinicians.

Smith found that, after removal of the pituitary in tadpoles, the following effects were noted: the larvae did not metamorphose; there was a slowed rate of growth; the thyroid, parathyroids and interrenal bodies were underdeveloped; there was an abnormal condition of the pigment-

bearing cells, resulting in albinism, and a large and persistent fat organ was found.

Injections of extracts of the anterior lobe corrected all these abnormalities. Posterior lobe extracts caused a partial correction of the albinism and a reduction in the size of the fat organ. There was no effect on the other abnormalities. The pars intermedia injections caused a reduction in the size of the fat organ and a more immediate effect on the albinism than was brought about by injections of either of the other lobes, but the final effect was no greater than that occasioned by injections of the anterior and posterior lobes.

Engelbach and Tierney hold that the anterior lobe is concerned with the growth and development of the bones, the sexual apparatus, the voluntary muscles, and, to a less extent, with pigment metabolism and the hair suit of the body; a deficiency of this lobe being accompanied by some deposit of chloasma patches on the forehead along the hair line, about the temples, angles of the mouth, and sides of the neck, while a hyperfunction of the lobe, especially in adult life, as occurs in acromegaly, is accompanied by an increased hair growth on the thorax and extremities.

Disturbances of the anterior lobe are divided into preadolescent and postadolescent because changes in growth of the long bones are no longer possible after closure of the epiphyseal lines.

For example, it is argued that acromegaly is due to a postadolescent hyperfunction of the anterior lobe. As further growth of the long bones is impossible, its stimulating influence is exerted on the short and flat bones. Their consequent overgrowth is responsible for the changes in the head, face, hands and feet that characterize acromegaly. Preadolescent hyperfunction of this lobe causes such overgrowth in the long bones as may result in gigantism.

Hypofunction of this lobe before puberty is accompanied by undergrowth of the long bones and the genitalia, producing an under-sized individual with a poorly functioning sexual apparatus. The various parts of the body bear normal relations to each other. Postadolescent hypofunction of the anterior lobe is accompanied by a decline and failure of the sexual powers and a loss of voluntary muscle tone, together with the pigment deposit previously mentioned.

The posterior lobe, they believe, has some control over carbohydrate metabolism, the unstriped muscle fibers, the renal secretion, the blood pressure, and possibly the body temperature. Disturbances of this lobe cannot be divided into preadolescent and postadolescent because its effects on the carbohydrate metabolism, etc., are the same regardless of the age of the patient.

When both lobes are involved the division into preadolescent and postadolescent is made. The classification advanced by these workers, while far from ideal, represents a real advance in our conception of pituitary disturbances.

The Parathyroids

Dragstedt and Luckhardt, in this country, have added to our knowledge of the parathyroids from the experimental side, while Novak and Hollender here, and Grove and Vines in England, have made valuable contributions from the clinical standpoint.

Dragstedt, in 1922, reported the result of his work which proved pretty conclusively that these glands are active in neutralizing toxins that arise in the gastrointestinal tract as a result of the action of proteolytic bacteria. He also showed that the oestrous cycle and pregnancy place an added strain on the body which is probably borne by the parathyroids, and, further, that experimental animals (dogs) could accommodate themselves to loss of the parathyroids if they were fed on a low proteid high carbohydrate diet for a few days before and about forty days after parathyroidectomy.

Luckhardt showed that the same thing could be done on a normal or even a high proteid diet if the animal was given large doses of calcium, either by mouth or intravenously.

The work of these two investigators quite definitely proves that the parathyroid function is concerned with the neutralization of poisons arising in the gastrointestinal tract and with calcium metabolism.

A treatment for epilepsy successful in many cases is based on results of this work.

Grove and Vines showed that calcium and parathyroid therapy was successful in many cases of varicose ulcer resistant to other forms of treatment. They also suggest its use in gastric and duodenal ulcer and erosion of the cervix. Their work has been only partially duplicated in America.

Novak and Hollender used parathyroid and calcium with considerable success in the treatment of hay fever, asthma, and hyperesthetic rhinitis. However, they also employed thyroid in connection with the calcium with equally good results so that their results may have been due more to the calcium than to the endocrine portion of their treatment. I have had considerable success in the treatment of those conditions as well as in persistent bronchitis, not tuberculous, with calcium alone.

Collip's discovery of the active principle of the parathyroids goes a step farther than any other worker has gone but it only corroborates the work of Dragstedt and Luckhardt so far as parathyroid function is concerned. It settles permanently the question whether the parathyroids are glands of internal secretion. As yet, we are not able to use this active principle clinically except in a very limited number of cases. It has the disadvantage of having to be given hypodermically. Doubtless, it will finally be found that, like insulin, it should be reserved for the severe cases of parathyroid insufficiency showing alarming signs of tetany.

The Thyroid

The isolation of thyroxin was of great scientific interest and of some practical value. While we are not yet certain that this represents the entire "active principle" of the thyroid, we know enough about it to make it valuable in some cases. However, so long as thyroid medication can be given by mouth, the clinician will find that desiccated thyroid serves him better than thyroxin. If the medication needs to be given intravenously, thyroxin is invaluable. One milligram of thyroxin given intravenously causes a rise of approximately 2 percent in the basal metabolic rate. This rise persists for about twenty days and the dose should not be repeated for at least fifteen days after the first one.

Iodine is again being used in the treatment of exophthalmic goiter. It is of great value in the preoperative treatment of these

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cases, causing a fall in the basal metabolic rate and a decrease in the toxic symptoms. This improvement is not permanent, however, so that iodine is probably purely a temporary and palliative measure in this condition.

The profession is also coming to realize that iodine may do a great deal of harm to patients with adenomatous goiters and that its indiscriminate use by public health agencies is attended with considerable danger and should be discontinued.

Greater emphasis is being placed on the differentiation of exophthalmic goiter from adenoma with hyperthyroidism. This is of great practical importance. While there are many cases of exophthalmic goiter amenable to medical treatment, practically all adenomata with hyperthyroidism are surgical conditions and should be promptly operated upon.

An attempt is being made to simplify the nomenclature and classification of goiter, but so far little headway has been made.

More attention is being paid to the milder forms of thyroid insufficiency. This is a hopeful movement because of the very large number of people so afflicted. There are probably five times as many cases of hypothyroidism as there are of exophthalmic goiter and adenoma with hyperthyroidism combined and, in the aggregate, hypothyroidism probably causes as much suffering as do "toxic" goiters of all kinds.

The treatment of hypothyroidism is a relatively simple affair and very gratifying in its results to doctor and patient alike, while the treatment of toxic goiter is difficult and many times disappointing to both patient and physician.

The Thymus

Regarding the thymus, little has been added to our knowledge in recent years. It seems certain that our old ideas regarding its atrophy at puberty were incorrect and that it probably functions until middle life or later. We are very uncertain regarding its functions. We are not even certain that it is a gland of internal secretion. That it has some relation to the blood and lymphoid tissue is fairly certain and that it has some reciprocal relation with the gonads admits of no reasonable doubt.

One of the most interesting contributions regarding the thymus comes from the University of Virginia. The Anatomy Department of that institution, at autopsy on one hundred and ninety-two (192) bodies, found

twenty-two (22) cases of persistent thymus (presumably this means that the thymus was enlarged, as measured by the general idea of the normal size for the age and weight of the person in whom it was found); twenty (20) of these were in murders of the first or second degree; one (1) was from a county infirmary; and one (1) from the state hospital for the insane.

The Pancreas

The discovery of insulin was one of the important events of recent medical history. It proved at once that the pancreas is a gland having two secretions; an external and an internal one. It gave us the greatest agent we have ever had for combating the complications of diabetes mellitus. It is not yet fully realized that the best treatment for the average diabetic, able to metabolize enough carbohydrate to maintain himself in comfort, is dietetic and that insulin should be reserved for the severe cases and for the complications.

The Adrenals

The most important addition to our knowledge of these glands was the discovery by Marine and Baumann that by damaging the adrenal cortex the syndrome of exophthalmic goiter could be produced. This had never previously been accomplished and served to do two things for us: first, it gave us a new idea of the function of the cortex; and, second, it showed us something new in the realm of exophthalmic goiter. Many clinicians, especially internists, had long believed that the thyroid was not the sole cause of this syndrome but were uncertain as to what other structure had a hand in its causation. This discovery helped to clarify the question. Shapiro acted on this information and used fresh adrenal cortex in a 50-percent glycerine emulsion in the treatment of exophthalmic goiter with very good results. He was not able to obtain such results with the desiccated product.

Curiously enough, these two facts have attracted comparatively little attention among the medical profession. To the writer, it seems certain that they have opened a new field in therapy.

Cannon proved that the adrenals are intimately concerned with the fabrication of heat by the body and so put a firmer foundation under the claims of the clinical endocrinologists that an insufficiency of the adrenals is accompanied by sensitiveness to cold, cold extremities, etc.

The Liver

Lately, MacDonald in Canada and Major in this country have done some very interesting work in the treatment of high blood pressure with extracts of the liver. This is not yet beyond the experimental stage but is the most promising treatment that has ever been suggested for hypertension.

The Spleen

The spleen continues to be an organ of mystery so far as its function is concerned. But it has been definitely proved that a combination of spleen and bone marrow has a decidedly beneficial effect in the treatment of secondary anemia and the same combination has a decidedly unfavorable effect on primary pernicious anemia.

The Ovary

Allen and Doisy claim to have isolated the active principle of the ovary from the liquor folliculi and from no other portion of the organ. Frank and his co-workers have isolated the principle not only from the liquor folliculi but also from the placenta. While this is of great scientific interest, it promises little for the clinician. A representative of a prominent pharmaceutical house estimates that each dose of the ovarian active principle as isolated by Allen and Doisy would cost about \$15.00. The clinician should not be too much disturbed by the pronouncement of these workers that commercial preparations of the ovary are without activity or value. Anyone who has studied the indications for ovarian therapy and carefully applied it must have been impressed by the favorable results obtained.

Ovarian insufficiency is a very common condition, occurring, as it may, at any time from puberty to the menopause, and is one usually amenable to ovarian medication, either by mouth, subcutaneously or intravenously.

The diagnosis of ovarian insufficiency rests on the history, the physical findings, and the exclusion of other conditions. The laboratory work is of value only in a negative way. The claim of Sietz, Wentz, and Fingerhut that they have isolated two active principles, one that inhibits the menstrual flow, and another that increases it, is not well supported.

In the meantime, while the experimental physiologists continue their study of the ovary, we clinicians must continue our ovarian therapy on the basis of the history, symptoms, and physical findings.

The claim of Steinach that "stimulating" doses of x-ray applied to the ovary causes a rejuvenation of the woman is probably about 75 percent wrong. It is unfortunate that popular novels, the movies, and the daily press give this idea such wide publicity.

The Testicle

Steinach's operation of ligation and resection of the vas for restoring youth to the aged attracts a great deal of public attention. Its value is probably greatly overestimated. Moore showed that such a resection does not produce the atrophy of the germinal epithelium and an increase of the interstitial tissue as claimed by Steinach. Moore also showed that the scrotum is largely a heat-regulating apparatus for the testicle and that when the testicle is exposed to a higher temperature than that found in the scrotum it quickly atrophies.

Stanley's work of testicular transplantation and injections of the fluid expressed from the testicle is very interesting and promising. So far as I can learn, it has not been continued on a large scale.

Testicular transplantation has not yet been done on a sufficiently large scale to demonstrate its value but some of the reports are very interesting and doubtless some patients are benefited by this measure.

The value of testicular extracts given hypodermically is still a matter of dispute. While my own experience has been disappointing in most cases and the "weight of authority" is against them, there are far too many clinicians claiming good results from their use to permit us to condemn them entirely. It is quite likely that we shall eventually learn the indications for their use more accurately and accomplish more good with them.

At the present time the whole field of testicular therapy is in a chaotic condition, filled with claims and counter-claims. The experimental physiologists are no more certain of their ground than the clinicians are of theirs.

Laboratory Worker vs. Clinician

In no field of medicine is there more intolerance and heated debate than in endocrinology. On the one hand, some clinicians claim all sorts of extravagant accomplishments for the endocrines and, on the other hand, other members of the profession refuse to admit that we have sufficient knowledge to justify their use in therapy,

with the possible exception of pituitrin, adrenalin, and insulin. Possibly this group will admit Collip's parathyroid hormone to the realm of their therapeutics. I have seen no mention of it.

Naturally the truth lies between these extremes. That much can be accomplished by endocrine therapy is certain and any reasonable man can convince himself of this if he approaches the question with an open mind.

That endocrine therapy is specific medication is a fact most critics overlook, if indeed they even know it. One can no more relieve hypothyroidism by giving the patient suprarenal or pituitary than he can cure tuberculosis by giving the patient quinine.

These glands are neither the pets nor the property of the endocrinologists and we are interested only in finding out more about them; not in proving or disproving anybody's theories regarding them.

Progress in Medical Economics

By BURTON HASELTINE, M.D., F.A.C.S., Chicago

BEYOND all question, the place now held by the medical profession in the general social order is highly unsatisfactory.

The dissatisfaction of the profession itself is shown by the repeated publication of articles complaining of the situation and suggesting measures to improve it. Significant also is the fact that three successive holders of our highest representative office, the Presidency of the American Medical Association, have felt called upon repeatedly to express this dissatisfaction in strong terms.

From the side of the nonmedical public dissatisfaction is shown in numerous ways. In lay publications articles appear with increasing frequency expressing distrust of the medical profession or antagonism to it. Certainly the number of people who elect to have the opinion, advice, and ministrations of practitioners other than regular remains unflatteringly large. Curiously enough, this condition exists along with an integration of the profession to a degree never before known. We have in America the largest, strongest, richest and most dominant medical organization in the world and one in which the nonconformist element is almost negligible.

Why, then, this unsatisfactory state of affairs? No one can presume fully to answer this complex question, but discussion from many viewpoints may in time lead to some concerted opinions and constructive ideas.

In any discussion of the subject we need, first of all, a perspective obtainable only after certain historical considerations. It happens, fortunately, that the present is a time peculiarly favorable for such considerations regarding our profession. We have reached a point where some sort of

stock-taking is almost inevitable, and it is by no means accidental that an extensive, although partly unconscious, stock-taking is now going on.

It is now almost a quarter of a century since the beginning of a definite movement, having for its avowed purpose the reform of the medical profession in the United States. This movement is now practically completed and the present status of medical affairs in America is largely its result. A consideration of the movement, its purposes, methods and accomplishments, is therefore timely.

It began with an investigation, privately conducted, of a large number of medical institutions, with the subsequent publication of reports calculated to arouse the profession and the public to the need for medical reforms. This was accompanied by recommendations regarding the teaching and the practice of medicine intended to remedy the evils that were found to exist. The cooperation of organized medicine was sought and obtained in the carrying out of a rather well defined program.

It would be difficult to state fully the results that were expected from this program but among the more important were the following:

- 1.—A decrease in the number of persons entering upon the practice of medicine and an increase in their individual efficiency.
- 2.—An improvement in the standing of the medical profession before the public and an increase in its influence in civic affairs.
- 3.—A lessening in the number and influence of irregular practitioners and followers of cults.
- 4.—An improvement in the status of legitimate doctors in their local fields of work.

5.—An improvement in the entire personnel of the profession from the anticipated greater attractiveness of medicine as a career.

The measures proposed to obtain these results have practically all been carried out and the results are observable by all.

Not one of the above named objects has been attained, if we except the decrease in number of graduates—the one undesirable result, judging from our present concern about shortage of doctors. The lessened number is obvious, but the improvement in average efficiency is not apparent. Considering the enormously augmented resources available, the medical graduate, in the opinion of most observers, has lost rather than gained in individual effectiveness. This is not surprising, when we see how the intensive technical training has produced a sort of formulization of his mental processes. His gain in technic is largely nullified by a loss in acute observation and independent thought.

The standing of the profession before the public is not a measurable item but certain facts are not without sinister significance: (1) In recent years, for the first time in history, certain parts of the practice of medicine have, by legislative enactment, been taken away from physicians and made the special privilege of other practitioners. (2) It has been decided by both state and national lawmakers that doctors cannot be trusted to judge the proper therapeutic uses of certain medicaments nor the safe methods for employment of them. Nor has the opinion of organized medicine been thought worth considering in these matters. (3) Worst of all, perhaps, is the opinion of us said to be held in that stratum of society we affect to despise, where it is well known that a medical expert can be hired to exculpate a murderer for less than the price paid the average criminal for doing the "job". Clearly in this department of medical activity we need better organization and higher union rates.

As to the number and influence of irregular practitioners and cults, instead of the expected lessening we have them flourishing as never before and as nowhere else in the world. This seemingly strange result was not unforeseen by men of clear vision. It was, in fact, predicted by at least one editorial writer, Dr. Clifford Mitchell, of Chicago, almost twenty years ago.

The average status of the individual doctor has not shown the hoped-for improve-

ment. The increased cost (both initial and maintenance) of practicing medicine, without corresponding recompense, together with the organized competition of irregulars and no organized support to combat it—these factors are driving the independent regular physician out of the field, and this is the real cause of the "medical crisis" in rural communities. It is likewise the chief reason for the formation of "group clinics", which are essentially defensive measures to meet the pressure of a competition that the individual cannot withstand.

Most significant of all is the profound dissatisfaction among practicing physicians, expressed in many ways, but always with the implication that the returns do not justify the outlay. The doctor seems to feel that in procuring a medical education he has purchased a sort of gold brick. He feels himself cheated in two ways: first, he was not rightly prepared for the work he was to do, and second the remuneration was not such as he had a right to expect. In comparison with the rewards to be obtained in other fields, his own seem meager. His admonition to prospective students of the better class is, "Stay out of medicine".

This attitude of physicians is typically expressed in a paper on "Apprenticeships in Medical Education" by Lloyd L. Ely, M.D., in the *Illinois Medical Journal*, September, 1925, wherein he says: "During the past five years I have been keenly conscious of the fact that the end product of six years' medical training, plus my internship, is far inferior to that which I had reason to expect it would be before matriculating. In other words, I feel that I have not had value received." He further speaks with bitterness of a system which supplies to the public "a doctor who can trace the life history of a red blood cell or beautifully stain the diphtheria bacillus but who can neither ligate a bleeding artery with a feeling of competence nor do an intubation on a strangling patient, even when made necessary by that same Klebs-Loeffler bacillus."

Naturally, all these factors have rendered medicine less attractive to high-grade students and the change in personnel has not been that which was hoped for. Students are being recruited more and more from the congested centers of population. Detailed observation of recent graduating classes and recent applicants before examining boards gives occasion for serious thought and offers small comfort to the rural community seeking an American doctor. How-

ever, an encouraging observation on this point has been made by Dr. Gilbert Fitz-Patrick, of the Illinois Board of Medical Examiners. Doctor Fitz-Patrick was a pioneer in advocating the required fifth year of hospital work and has studied the effects of this improvement in the States which have adopted it. He finds that the experiences and contacts of the hospital year greatly raise the average level of candidates for licensure.

Since the well organized and sincere effort of the profession has, in these several respects, failed, it would seem that the directing ideas were in some measure erroneous and the measures taken partly mistaken ones. To search out and rectify these errors is the most vital problem now before the medical profession of America.

We are fortunate at this juncture in that there has been published a book, written by one qualified, probably above all others, to discuss the technicalities of medical education.* Mr. Flexner's book is a survey of present-day medical education in America and in Europe. Especially it is a report of progress in America during the last two decades. It is highly illuminating both in its statements and in its not wholly institutional implications. The book is, in fact, to a remarkable degree a review of Flexner's work—by Flexner. This is inevitable, since no other individual has been more instrumental in directing recent trends in medical education that has he. The book betrays no consciousness of this, and the phases in which real improvement has been made are admirably set forth. But the note of dissatisfaction is present, even here, as shown by the following (p. 105):

"Though the statistics involved are extremely complex, it is apparently true that the student of medicine in the United States has in general spent more years in school and college than the student of any other nation, without, as we have abundantly shown, receiving as good an education as some others who have spent two years less. * * * The American student ought to spend less time and to obtain in the reduced number of years a more thorough education."

Confronting the problem of what to do, Mr. Flexner, like all other critics, at present, is somewhat bewildered. Naturally, those who have believed in copying the German model are perplexed that our efforts to do so have brought such poor results, a perplexity not relieved by the knowledge that, in Germany itself, the system now seems

to be a failure. To them it is little less than shocking to read statements like the following from the *Journal of the A. M. A.* of November 14, 1925.

"WARNING AGAINST STUDYING MEDICINE.—The Prussian state authorities have issued a public warning against taking up the study of medicine in the next few years. Among the reasons given are that the outlook for physicians is the worst conceivable, while the training in medicine is the most expensive of all the academic professions. The *Klinische Wochenschrift* adds that the warning was issued at the initiative of the officers of the organized medical syndicates, the *Aerzteammern*."

From the trend of recent expressions of our elected representatives, it would seem that we are not far from the occasion for similar warnings in America.

Now a subject so admittedly baffling to trained educators one would not presume to discuss were it not apparent that some of the errors in leadership have resulted from the fact that our leaders are just that—trained educators. The greatest single trouble with medical training today is that it is too much under the direction of men who never had, or who have largely lost, contact with the occupation of practicing medicine. The full-time teacher idea has been carried too far. Medical training has been refined and polished and ritualized until, like certain fancy products, it has lost some of its essential vitamins. It needs both the vitamin "A" of a reestablished contact with the practical treatment of the sick, and the vitamin "B" of the readjustment of professional affairs upon sound economic principles.

Granted that a high ideal is essential, the tendency to set up a scientific ideal as superior or opposed to a clinical ideal is illogical and mischievous. Scornful references to "mere clinicians" are entirely out of place. The student should know that most of the advances in medical science have been made by clinical workers. As one eminent medical teacher has recently said,* "Until recently the pharmacologist has been the cartographer, far behind the clinician, the pioneer, and it may still be said with truth that our methods of treatment rest chiefly upon bedside experience."

Undue emphasis upon the research idea and the exaltation of laboratory ideals is producing mere technicians rather than either good doctors or true scientists. It would seem that we have grown a bit top-

*Medical Education—A Comparative Study, by Abraham Flexner—The Macmillan Co., 1925.

*Hobart Amory Hare, M.D., L.L.D.—Address to Congress on Clinical Medicine, March 11, 1925—*Therapeutic Gazette*, July, 1925.

heavy with ideals and that our need now is for a frank recognition that the medical college is essentially a vocational school. Almost without exception the medical student enters college to prepare himself for earning a livelihood, by treating the sick for pay, exactly as he would prepare for any other gainful occupation. This is the central fact of the situation and any teaching which tends to blur this fact is faulty.

Here, then, becomes apparent one serious defect in medical training—an almost complete absence of what may be called the economic viewpoint. There is, indeed, throughout the college course a curious traditional reticence as to everything concerning material pay for medical service. References to the subject are usually furtive or facetious, while a dignified discussion of the business side of medicine probably never occurs.

This strange inhibition no doubt explains the paradoxical situation existing in medicine today. No other occupation is more completely modernized in every detail of technic; and no other is in economic matters so sadly antiquated. Surely one of the functions of the technical school is to prepare its students for the conduct of what is to be their life business. Surely the medical student is entitled to some authoritative instruction in the economic problems of medical practice. He needs instruction in the legitimate ways of seeking to use the skill he has acquired and in obtaining an honest return for it. Along with a high standard of technical skill he should be taught a high standard of economic responsibility. The idea that any merit or virtue is shown by despising material recompense is a grotesque relic of medievalism. Worse than that, it is often a hypocritical pose. No one would discourage high ideals of service nor deny our peculiar pride that our calling is one demanding such ideals. But service, like charity, begins at home and the physician's first duty to humanity and to the state is to provide properly for those personally dependent upon him. There is nothing in the code of ethics requiring a doctor to leave his children penniless.

It is not too much to say that the lack of coherent thought and intelligent teaching on economic questions is the chief reason for the present state of affairs. The distrust and criticism of doctors by laymen, both just and unjust, results mainly from this. Medical chicanery, whether within the

profession or outside it, can usually be traced to this cause. Few men will choose the ways of crookedness, if shown how to succeed by honest and straightforward methods. Medical schools should provide such instruction as essential to the maintenance of high standards.

The effects of our economic medievalism are by no means limited to the profession itself. In matters of health service we find nearly everywhere economic demoralization. In private relationships both physicians and patients often fail to maintain the high standards that prevail in other business affairs. Doctors are not always ashamed to be "poor business men"; while many laymen impose upon physicians in ways that would discredit them in the commercial world.

In public and semi-public affairs conditions are still worse. The city, county, state and nation still expect and obtain free medical service for dependents, while every other service to them is paid for at fair rates. The industrial corporation is just beginning to learn that medical service, like any other commodity, cannot continue to be furnished below cost without a deterioration in quality. Underpay means less efficiency in our work as in any other, and the effect is even more disastrous.

In our quasi-public institutions the evil is seen undoubtedly at its worst. The medical charity abuse has long been a scandal, but the doctors can neither find the cause nor the remedy because both lie entirely within themselves. Faulty education and false propaganda fostered by the profession have produced most of these evils. To give one concrete illustration: When it is proposed to supply a community, let us say, with such an important commodity as health service, the plan is not organized, financed and carried out as any other would be, on the basis of selling a valuable thing for a legitimate price and making it honestly self-supporting. It is done, rather, by a double system of organized begging. The doctors, through their institutions and friends, go out and beg for money and then teach the people ever after to come in and beg for service. And the only service they are taught to obtain free is medical service.

Partly inherited, too, from medieval times is a vestigial idea that the doctor's fee partakes somewhat of the nature of a gratuity. With no education to correct this, a false delicacy often exists tending to prevent a frank discussion as to payment

for medical services. Some patients interpret this as an intention on the doctor's part to overcharge them, while others deliberately utilize it to their own advantage. Not infrequently this same anachronism betrays the physician into becoming a sort of super-servant in some well-to-do patient's ménage—a situation not only degrading to the physician but fatal to the control necessary for the patient's best interest.

Most vicious of all the false education emanating from the profession is the idea that the rich patient should be charged higher fees merely because of his ability to pay, and the allied notion that the private patient should be made to carry the burden of the doctor's public service. These fallacies are justly resented by every patient of intelligence. No sane man is willing to pay more than an article is worth merely because he has money; and no private citizen enjoys being mulcted to aid another citizen's philanthropies.

The only proper basis for the price of any commodity is its value to the purchaser and medical service is supremely worthy to be sold upon this basis. Furthermore, the purchaser, wherever possible, should know the cost in advance and make his own estimate as to its fairness. No one would suggest delaying to discuss charges when prompt service is needed to relieve suffering or to meet an emergency, but in ordinary cases the patient should be treated with the same courtesy he would expect in any other transaction wherein he assumes a financial obligation. Any custom or code that denies him this courtesy is neither good ethics nor good sense. When the surgeon tells his patient that he cannot say what the charge will be until he has completed the operation, the patient has a feeling that he is being bunkoed—and the patient is entirely right. He knows that the charge is going to be more than it would be if arranged at a time when he had the liberty of choice.

The question of material value to the recipient of medical service naturally involves many factors and seems highly complicated. Actually, however, fair estimates are in most cases easily made.

There is a fast-growing appreciation of the financial value of health service. The tangible asset of the healthy man or woman and the tangible burden of the sick one are being reduced to definite figures. Unfeeling statisticians are even showing the difference in cash value between individuals or different

capacity. The health or longevity of the moron may be as precious to him as is that of the university president, but in assessing the value of a service to conserve the one or the other the economist would see a vast difference.

In considering the value of service to communities or other groups, accurate estimates are relatively easy. The experience of one Chicago industrial concern of which the writer has personal knowledge is highly instructive and worthy to be cited in some detail. This corporation has, for a longer period of time than any other, continuously furnished all health service to its employees without expense to them. For a number of years this was done in the usual way, cheapness being the first consideration, and with the usual result. Then the management conceived the daring plan of creating and conducting a medical department on a basis of quality and efficiency rather than on a low price basis. A medical director was secured, who was known to be high priced because highly capable. He was given *carte blanche* in the matter of equipment and personnel with unhampered authority in his department. He was empowered to employ skilled specialists, wherever needed, and to pay hospital and all similar expenses. Naturally, at first, the work was heavy and expenses were large, but when sufficient time had elapsed to allow a statistical estimate of the result it was conclusive. The total loss of time for illness among six thousand people during a two-year period had dropped more than thirty percent, while the average efficiency as shown by volume of work done had materially increased. Indeed, it was shown that in any case of lessened efficiency from impaired health, the increased capacity, following restoration to normal, more than compensated for the cost of the service. Even more striking was the fact that the total cost of the service, in spite of high salaries and expensive equipment had dropped about twenty-five percent.

Naturally, the plan was continued and extended until now, after twelve years of operation, it includes all of the six other large plants of this corporation. The instructive phases of this work are, of course, innumerable. One may be mentioned: Provision was necessarily made to care for cases of tuberculosis. The patients were given sanatorium or other treatment until they could safely return to work, while permanent provision was made for all in-

curable cases. This was, for some time, a considerable burden but the development of new cases soon ceased, and for several years this concern has not had to spend a dollar for the care of tuberculous patients. It would be difficult to find any other instance where a like investment has yielded an equal return.

Another factor seriously affecting the status of the physicians in practice is an increasingly wrong focus of attention during the entire period of training. This is a factor hard to define but unmistakable in its influence. It can be visualized, perhaps, if we think of the problems of medical practice, as divisible into major and minor problems. Major, of course, are all problems of community and public welfare and all individual problems involving great responsibility. As major, too, we would regard those cases requiring prolonged study or an unusually high degree of judgment or technical skill.

Minor problems would be those involving no momentous responsibility and requiring no unusual skill, such problems as are presented by the lesser afflictions of people in the ordinary course of events. Everyone knows that in the American community the number of minor problems presented to the physician in his early years of practice enormously exceeds the number of major ones. Indeed his early success and even his chance of meeting the major problems depends largely upon his skill in meeting minor ones.

Now in our zeal to maintain the highest academic standards we have focused the student's attention so entirely upon major problems that the minor problems has almost disappeared from consciousness. Indeed in our scorn for "mere clinicians" we

have unconsciously imbued the student with a contempt for the minor problem as unworthy of his serious attention. This is why the recent graduate is notoriously prone to make a major case out of every patient he is called to see. This is why, confronted with the minor afflictions met in daily practice, he is neither interested nor resourceful. This is why the pseudo-doctor, trained to the minute in things to do for minor ills, easily convinces the patient of his superior skill.

There is a very real relation between demand and supply and if the medical graduate cannot continue to exist in the rural community, it is because he does not furnish a service suited to that community's needs. As Doctor William A. Pusey, ex-President of the A. M. A., has well said in a recent address: "Medicine's first duty is to train soundly a large number of men to do the ordinary work". If students are to go out to meet a competition admittedly serious, they should be taught to meet it by serious and effective effort. They should be equipped, also, with detailed information as to the nature of this competition. They should be qualified to show a genuine superiority, rather than arrogantly to assume a hypothetical one.

While inspired always with the worthy ambition to add something to human knowledge, they should know that the bulk of their labor will be the use of already acquired knowledge in the relief of suffering. They should know, too, that this ancient business of restoring sick people to health is still a dignified and honorable calling, worthy of the best talent and the sincerest devotion of any man or woman.

122 S. Michigan Ave.

The Progress of Sanitation and Public Hygiene

By HERMAN N. BUNDESEN, M.D., Chicago

Commissioner of Health, Chicago

THE desire to live long and well is instinctive. Self-preservation is the first law of nature and under its sway life lasts as long as the individual is capable of warding off accident and disease.

Primitive man knew little of personal hygiene and even less of general sanitation. He probably did not need them. He lived in

the open, had plenty of fresh air and sunshine, and took ample exercise in seeking his food and evading his enemies. Barring sudden, violent death, the strongest survived—how long we do not know, but at least long enough to have progeny and transmit the qualities that made them survive.

With the beginning of community life, however, with its greater ease and comfort and the development of artificial surroundings, there came also the beginning of disease.

Disease germs which had been harmless up to this time now found favorable soil for growth in lowered resistance, favored by a lack of fresh air, the shutting out of the sunlight, the accumulation of filth, overeating and under-nourishment.

With the dawn of history the early recordings show that epidemics of contagious disease ravaged the communities, taking toll of millions of lives. Every man, woman and child was threatened by the dangers of disease against which they knew no protection.

Life was a game of chance against the menace of disease. The cause of contagion being unknown, superstition held the front in a fruitless fight against the horrors of disease that shortened the span of life to a point where the average person could not be secure beyond the beginning of adult life. The science of sanitation was not yet born to point out the truths that water and food may spread disease; that flies, rats and mosquitoes are disease bearers; that man himself may be a disease carrier; that adequate sewage disposal will prevent disease, and that cleanliness, personal and public, are of vital importance to health.

A scant half century ago, in 1876, Louis Pasteur startled the world by his discovery that germs cause disease. Here was the solution of the mystery of the origin of disease, and at the same moment was born the science of bacteriology, that not only was to shed light upon darkness but to bring great material benefits and confer upon us longer life and greater health and happiness. With this momentous discovery, modern public hygiene was brought into existence to point the way to health, simply by living clean and wholesome lives. Superstition was destroyed by knowledge, and knowledge brought defensive action.

The advance in public sanitation following the discovery of germ life has been breathtaking in its progress. Its history reads like a romance, setting forth the work of medical heroes, many of them martyrs to the cause of disease prevention, and describing the struggle for humanity against ignorance and disease.

In an amazingly short time Pasteur, Koch, Lister and others found and studied the germs of pneumonia, typhoid fever, tuberculosis, cholera, erysipelas, diphtheria and

lockjaw. Twenty-five years ago Walter Reed convicted the mosquito of being the transmitter of the yellow fever germ. How General Gorgas and his disease-conquering army of sanitarians made possible the building of the Panama Canal is a brilliant chapter.

Concomitant with these discoveries there began a most significant and far-reaching movement, the awakening of the public conscience, and the general realization that health, far from being a mere individual matter, is a community problem. In other words, education in the facts of public hygiene and sanitation brought to light the danger of insanitary surroundings and stimulated activity that has almost banished several death-dealing diseases from progressive communities. Education has taught the masses the secret of health and has made possible the mastery of surroundings and circumstances.

Education in public health proved the wisdom of proper isolation and quarantine of all communicable diseases for community safety. It taught that the temporary discomfort of one individual must not endanger the safety of the whole group. It brought home the point that if man is to be protected against disease, he must be his brother's keeper in matters of health.

Besides the loss of life and the crippling effects of disease, the value of health to the economics of a community must not be discounted. Indeed, a nation is as rich as the health and vigor of its workers.

Another remarkable outcome of public health education has been the development of a new attitude toward health conservation, in that, instead of waiting to fight disease, we are concentrating on those things that will bring resistance to disease. Instead of waiting for disease to appear, we are actively preventing its appearance. In other words, we are changing our mode of attack from negative defense to positive offense. This is the ideal program of preventive medicine.

Medical school inspection, which includes physical examinations, is a notable instance of advance. In this phase of public health education we are concentrating on the conditions that favor contagion, and thus preventing its spread. Infant welfare work, as well as prenatal care of babies, though still comparatively new, has already attained far-reaching results.

The propaganda for regular physical examinations is meeting with great favor

and the response is coming, to the advantage of the individual and the community.

Be it understood that we have by no means reached a health Utopia. The greatest single cause of human wretchedness still remains—ill health. Carelessness and ignorance are still rampant, as indicated by the need of one physician for about every 100 families. While we are materially reducing the death rate in the larger and more progressive cities of America, only two out of every 100 persons born live the allotted span. While the world is now in an age of great progress and development, due to many causes, of which growth in the understanding of the value of public health is not least, nevertheless, sickness continues to be the enemy of everything in life that is worth while. While we shout from the housetops that health is an indispensable form of wealth, let us note the following figures:

In the United States there are on an average of 3,000,000 persons ill all the time. Forty-two percent of this sickness is preventable; that is to say that every day in the year over a million people are shut in or going around ailing and suffering when they could be well and happy and attending to their business.

In 1900, in the industries, there was an average loss of 13 days per person due to illness. In 1923 this was reduced to seven days per worker. It is gratifying to know, however, that in the last 25 years the general death rate in the United States Registration Area has dropped from 17.6 per 1,000 in 1911 to 11.6 in 1924. In 1924, Chicago led all the metropolitan cities of the world in lowest death rate, 11.2 per thousand population.

CITY	DEATH RATE	11	12	13	14
CHICAGO	11.2	██████████			
BERLIN	11.7	██████████	██████████		
NEW YORK	11.8	██████████	██████████		
LONDON	12.1	██████████	██████████	██████████	
DETROIT	12.6	██████████	██████████	██████████	██████████
PHILADELPHIA	12.9	██████████	██████████	██████████	██████████
PARIS	14.3	██████████	██████████	██████████	██████████

While many diseases have been checked and a few are no longer seen in these parts, there are some new ones that puzzle us and others that still remain killers. In-

fluenza came as of yore and killed some 5,000,000 people a few years ago. And we still know but little about it. Heart disease continues to be a notorious killer and pneumonia is one of the captains of the death fleet. Cancer is still a closed book to us, and is still taking a steady toll. Science will conquer these, too, as it has the others. But there is need of greater cooperation from the public.

Are we downhearted? No, not at all, and for the following good reasons:

In 1800 the average length of life in the United States was 33 years. Today it is 58 years. Public health work has been responsible for a life-saving record that is remarkable. And think what this means to the wealth of our country. It is estimated that every year added to the life of an average man is worth \$500 to the nation. If the life of 10,000,000 people was prolonged one year, the gain to the nation would be five billion dollars—enough to run the federal government a year and pay off the billion or more national debt.

After all, the money value of the extra year added to man's life is the smallest part of it. The human value is what makes it most worth while. Who can estimate what it means in happiness to a million families whose fathers are spared a few years longer before the hand of death breaks up the home? We are off the road to longer and healthier lives. We have had enough of epidemics of contagious diseases. Let's have contagions of health. The outlook is good for an average life span of 100 years.

But we must begin where the soil for health education is most fertile; namely, with our boys and girls, upon whom rests the future of the nation. We ourselves must suffer in a measure for the ignorance and carelessness of our forebears. But, in the light of what we know today about how to prolong life and conserve health, the rising generation should so far advance in physical and mental well-being as to be living monuments of progress and enlightenment in public health.

To actively increase the vigor, wholesomeness, health and happiness of the community, each for all and by all for each, is the hope of the future.

Progress in Physical Therapy

By J. S. COULTER, M.D., Chicago

IN THE last few years physical therapy has made considerable scientific progress. Many of the claims made for this form of therapy are still unscientific and this fact caused the American Medical Association to form a Council on Physical Therapy similar to their Council on Pharmacy and Chemistry. This council will investigate the claims made by the various manufacturers of instruments, and is the outstanding signpost of progress in this subject in years. The most important scientific work done in physical therapy has been on the effects of the ultraviolet rays.

Heliotherapy and Ultraviolet Ray Therapy

The investigation of the action of the ultraviolet rays in rickets and on growth has shown the essential importance of these rays in medicine. Therefore, the advocacy of outdoor life has received a new impetus, but Hess¹ has shown that there is a climatic difficulty in securing the proper length rays for treatment. He compares, by the Weather Bureau data, the amount of sunshine in the temperate zones with that of the West Indies, and finds that, due to the rainy season, there are cities in the West Indies that have less yearly sunshine, and in the rainy season there is a prolonged period when the sunshine is less than in New York in the winter time. Therefore, the determining factor is the quality and not the quantity of the sunshine, as rickets is prevalent in New York and absent in the West Indies.

The results of heliotherapy in the winter months have been disappointing, owing to the fact that the antirachitic region of the solar spectrum is very limited at this season, and that patients cannot be exposed, due to the severity of the climate. The amount of effective radiations in winter is so small that, even if quartz panes are used in the windows, they will not afford protection from rickets. Therefore, artificial sources of light are being used for the purpose, the chief being the mercury quartz light and the carbon or modified arc light.

The most commonly used light in this country is the mercury quartz, as it is mechanically easy to operate and does not smoke. The carbon arc light was the first source of artificial light used; this was by

Finsen, and it is still used by Dr. Reyn in the Finsen Institute. Dr. Hall in his recent book on this subject claims that the tungsten arc gives an ideal spectrum for this therapy, but the tungsten rods are very expensive.

Ultraviolet rays, to have a value in rickets, must have a wave length not longer than 313 millimicrons. Solar radiations shorter than 295 millimicrons do not reach the surface of the earth. At this end of the spectrum we do not know how short the rays may be and still have value, but the short rays are irritating and there may be a limitation at this end of the spectrum also².

These rays have little power of penetration as smoke, fog, atmospheric dust and moisture and ordinary glass filter out the potent short rays, but experiments with their activity in rickets have given a most reliable indication of their action. It is shown that infants with active rickets fail to retain calcium and phosphorus although an adequate amount is present in the diet; that ultraviolet rays cause large amounts of these elements to be retained in the body; and that increased amounts of calcium and phosphorus are found in the urine after ultraviolet radiation, indicating an increased absorption from the intestine^{3, 4}.

There is also an indirect action—a power of ultraviolet light to produce an antirachitic factor in plants, in vegetable oils and leafy vegetables endowing them with a potency to prevent rickets^{5, 6}.

Ultraviolet rays also lead to an increase in the lymphocytes of the blood which is of interest in connection with their curative action in infections of the lymph glands⁷.

Recent experiments indicate that exposure of the skin of animals to ultraviolet rays from a carbon arc or mercury vapor lamp increased the bactericidal efficiency of the blood, due to an improved functioning of the leucocytes⁸.

Normal rabbits, radiated with ultraviolet rays, showed a consistent reaction of the parathyroid glands. The exposures caused a hypertrophy of the glands amounting in some instances to more than half the normal weight⁹.

The production of pigment in ultraviolet ray therapy is important and Bang shows the coincidence between the bactericidal

light rays and the rays producing pigmentation and sunburn. Certain individuals never tan, especially certain tuberculous subjects, and these seem absolutely refractory to light therapy¹³.

In wounds on rabbits granulation and healing are accelerated by heliotherapy, due to the more rapid formation of vessels and an increase in the size of the diameter of the vessels as compared with the controls¹⁴.

Infantile Tetany: showed progressive and permanent relief of clinical symptoms with ultraviolet rays, applied in amounts approaching the limit of tolerance, without other treatment and paralleled by the return of the serum calcium concentration to an essentially normal figure¹⁵.

Bone and Joint Tuberculosis shows more favorable results under heliotherapy as given by Rollier than under any other treatment. In 2,167 cases treated since the outbreak of the war, all controlled by radiography, 1,746 were healed and 242 improved. In his book on Heliotherapy many of these cases are illustrated¹⁶.

In this country the use of the ultraviolet rays, as produced by the mercury quartz light, has had nearly this value in the same class of cases.

Glandular Tuberculosis was decidedly benefited by the sole use of ultraviolet rays produced by the mercury quartz light, says Gerstenberger, and of these cases the mesenteric form is most rapidly improved; next the mediastinal, and last the peripheral¹⁷.

Axel Reyn reported 629 cases of tuberculous glands treated at Finsen Institute during the years 1910 to 1921. Of these 76 broke off treatment. Of the remaining 553, 86 percent were cured. He believes that, of the artificial light sources, the carbon arc is greatly preferable to the mercury quartz light¹⁸.

Pulmonary Tuberculosis was favorably influenced in McCutcheon's series of 105 cases¹⁹.

Mayer²⁰ says that its use in pulmonary tuberculosis is not to be especially encouraged, and Stephani²¹ observed a large number of instances of rapid progress of pulmonary tuberculosis due to overdosage of sun's rays.

Bronfin's²² experiences with heliotherapy in advanced pulmonary tuberculosis has not yielded favorable results.

Lo Grasso²³ says that, in his series of 40 selected cases of moderately advanced pulmonary tuberculosis of an active character,

with no tendency to quiescence or arrest, and with unfavorable prognosis after a thorough rest-cure, the physical signs showed a decrease in 78 percent, no change in 16 percent; and an increase in 6 percent of cases with the use of heliotherapy.

An interesting observation has recently been made in determining the effect of ultraviolet rays on tuberculous adults. It was shown that there is no effect on the calcium and phosphorus content of the blood, and in fact there was no evidence of an abnormal metabolism of these elements²⁴.

Intestinal Tuberculosis in a series of 81 cases of Erickson²⁵ showed a favorable result in 85 percent, as judged by entire relief or definite improvement.

Skin Diseases: Oliver²⁶ says that ultraviolet rays from the quartz light are of great value in many ulcers, especially those due to poor circulation, port-wine type of vascular nevus, and in alopecia areata. It is often of assistance in treatment of psoriasis. In localized chronic eczema, with infiltration of the skin, results are often remarkable. In acne vulgaris, though the light is beneficial, improvement is usually only temporary. In lupus vulgaris it is sometimes curative.

Swartz²⁷ reports that 99 percent of psoriasis patients responded and he has been able to keep them free of the disease for a longer period than with any other treatment.

Czepa²⁸ reports excellent results from the use of the quartz lamp in the treatment of about 100 cases of erysipelas.

Reyn²¹ reports excellent results from a combined local and general phototherapy with the carbon arc lamp with a continuous current of 50 or 52 volts. A permanent recovery with slightly visible scars was manifest in 90 percent of 104 cases of lupus, while intensive but only local treatment proved far less effectual.

Ultraviolet Ray as a Prophylactic Against Radiodermatitis

McKee and Andrews²⁹, in a series of observations, come to the conclusions that the ultraviolet ray, regardless of how employed, is of no practical value as a prophylactic against acute or chronic radiodermatitis; tanning of the skin does not materially increase the toleration for x-rays or radium; and that a combination of the ultraviolet ray and the Roentgen ray is more likely to be followed by sequelae such as telangiectasia than when Roentgen ray alone is employed.

Actinotherapy is of some value in the treatment of chronic ulcers and telangiectasia caused by Roentgen rays or radium.

Electrotherapy

The most used current in electrotherapy is diathermy, which is the production of heat within the tissues of the body due to their resistance to the passage of the current between two electrodes. The current has such high oscillations as to cause no muscle contractures. Medical diathermy only will be considered here as surgical diathermy or electrocoagulation is a surgical procedure.

Diathermy in Joint Injuries: Ewerhardt²² says that in ten years 70,000 treatments show that it is a valuable measure to partially control pain, spasm and swelling in the earlier stages of fractures and joint injuries; the period of convalescence in fractures is materially reduced; its application seems indicated in postoperative bone and joint conditions, acute sprains, fractures, bursitis, in acute and chronic arthritis, and in treating contractures and fibrositis. It is *contraindicated* in pus conditions without drainage, where there is a danger of hemorrhage; in tuberculous joints; and in suspected malignancy.

Holmblad²³ reports 186 cases of injury treated by diathermy and says that pain was reduced more than 50 percent in all cases during the first 24 hours.

Diathermy in Calcified Subdeltoid Bursitis: Harris²⁴ reports a case existing seven years where the calcified deposit was almost completely absorbed by treatment with diathermy from Jan. 21 to April 6th and says that a long series of cases treated over a period of years has shown a complete restoration of function and an absence of pain.

This brought a communication in the same journal, Oct. 20, from Fisher, stating that, in these cases, a fairly large proportion of the calcium disappears without any treatment whatever. This brought another communication in the same journal, Nov. 7, 1925, from Dr. Titus reporting eleven long standing cases with the absorption of the calcium deposits. It is believed that diathermy will certainly help the absorption of the calcium, as the first case mentioned had existed 7 years and the calcium was absorbed in less than 3 months.

Diathermy in Urology: Kyaw²⁵ declares that diathermy can be counted on to cure gonorrhea in the female, and is equally

effective whether the electrode is in the vagina or the rectum. The heat is graduated with thermometers and he applies it for three hours at least.

Cumberbatch and Robinson²⁷ used diathermy in twenty-six cases of epididymitis, twenty-five cases of arthritis, and sixteen cases of urethritis with excellent results.

Corbus and O'Connor²⁸, in 35 cases of gonococcal endocervicitis treated by diathermy, with a thermophore devised by Corbus, believe that this method has been more successful than any previously tried technic. They also believe that it is a specific for gonorrheal epididymitis²⁹.

These results are confirmed by several others³⁰.

Diathermy in Pneumonia: Stewart³¹ uses direct diathermy in pneumonia and gives two or three treatments in 24 hours. He says the number of cases reported is still too few to justify definite statements as to lowered mortality, but the symptomatic relief is so marked as alone to justify this form of treatment which may be combined with the use of serum or other methods.

Electrotherapy of Atonic Constipation

Lamarque believes that the electric current may be the best means to stimulate to normal function the smooth muscle fibres. He uses a slowly interrupted faradic current, once or twice daily for three or four weeks³².

Electricity in Infantile Paralysis: Jones and Lovett³³ say that the use of electricity in proper doses in infantile paralysis probably does no harm locally and perhaps some good, but it often does harm by making the parents and practitioner believe that the patient is being efficiently treated while the other important and really useful means of treatment are being neglected. The use of electricity in too strong a dose may be positively detrimental.

External Heat

We have long known the benefit of external heat, but Pemberton and Crouter³⁴ have shown that profound changes follow even a mild exposure of the body to this form of treatment. In addition to the profuse sweating there occurs a heightened circulation, increased pulmonary ventilation, increased percentage saturation of the venous blood with oxygen resulting from an increased blood flow, an increase in the alkalinity of the blood, an alkaline urine, and a change in the reaction of the sweat from its initial point to a reaction less acid

or more alkaline. These changes are brought about by a loss of acid from the body—chiefly carbon dioxide, through the lungs, urine and sweat—which results in a relative excess of alkali. The excess of alkali alters the reaction of the blood and is then eliminated through the urine and sweat producing the swing toward the alkaline range.

The loss of weight in hot air baths may be considerable, and recent observations show this may be as much 600 Gm. an hour by exposure of the nude person to dry hot air, in contrast to a loss of 50 Gm. an hour in room air. This difference has been demonstrated to be due to the increased amount of visible perspiration rapidly removed by the hot dry air. The augmentation of metabolism amounted to not more than 10 percent after a sojourn of from one to one and one-half hours in a hot air bath, so the drop in body weight is due to the loss of water alone".

Exercise

Barr¹¹ has recently demonstrated that exercise causes a state opposite to that following the exposure of the body to heat. The contracting muscles produce lactic acid in amounts sufficient to change the acid base equilibrium and reaction of the blood for as much as fifty minutes or more after vigorous exercise, notwithstanding the compensatory hyperventilation and removal of carbon dioxide.

Massage

Pemberton¹² and his associates have shown that massage of voluntary muscles, even though vigorous, is not accompanied by the evidence of lactic acid production and acidosis which accompany relatively mild active exercise of short duration or by the evidence of loss of acid and alkalosis which follow exposure of the body to external heat. Massage can be used as a partial substitute for active exercise in many conditions, but its benefit, according to them must, be referable to changes in the circulation, especially capillary. The favorable influences on rheumatic and arthritic conditions following exposure to external heat, massage and exercise find their chief explanation in their influence on the circulation.

Summary

In this brief review of the recent scientific literature on physical therapy it is shown that this form of therapy affords an aid in the treatment of a wide range of condi-

tions; that it is being used and investigated by the entire medical profession; that the literature on this subject, at last, is becoming scientific; and that conclusions are not being based on over-enthusiastic claims of cures in single cases, but on results in a series of cases and on laboratory investigations.

The application of physical therapy must be based on a thorough knowledge of the pathology and diagnosis of the case and on the physics of the form of this therapy that is used. Therefore the treatment should be supervised by a physician; given by trained technicians; and with efficient apparatus. It will be most effective when used as an adjunct to recognized medical, surgical and orthopedic measures.

47 E. Superior St., Chicago, Ill.

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Recent Progress in Neuropsychiatry

By CHARLES F. READ, B.S., M.D., Chicago

Head of Division of Mental and Nervous Diseases, Loyola University Medical School

PROGRESS in any branch of medicine, though its ultimate goal be prophylaxis and treatment, cannot at any one time be measured in terms of these results alone, since understanding must precede adequate prevention and therapy.

In the field of investigation, the attention of neurologists has of late turned quite largely to problems of muscle tonus. The pathology of encephalitis lethargica has shed much light upon the relationship of the basal nuclei to muscle status. The *striate body*—consisting of the outer portion of the lenticular nucleus, the caudate body, and the fore part of the internal capsule, which lies between them—together with the nucleus ruber and the substantia nigra are quite generally found to be affected in postencephalitic conditions in which, during life, the patient has suffered from rigidity with tremors, or from choreiform movements, myoclonus, etc. The pyramidal tracts, upon the other hand, are not usually involved; the distressing sequelæ are the effect of interference with nervous structures that determine muscle tonus and the smooth cooperation of flexors and extensors, rather than with those affecting the transmission of purely contractile impulses.

Though Rosenau believes he has found the offending microorganism in a "green-

producing" bacillus obtained from washings of the nasopharynx, while others look upon the disease as another modality of acute anteriopoliomyelitis, rational therapy in encephalitis, as well as many kindred disorders, must wait upon undisputed pathogenesis.

Royle and Hunter of Australia have excited much interest with their claims of results obtained in the treatment of spastic paraplegia by section of the sympathetic rami of the lumbar spinal roots. Kanavel, Pollock, and Davis, of Chicago, however, have failed to verify their results either experimentally or by operation.

The Brown and Coffey operation (after Jonnesco) for the relief of angina pectoris by resection of the spinal sympathetic belongs to the annals of surgery and medicine rather than neurology, but deserves mention in this connection along with the work being done in periarterial sympathectomy for ischemic contractures, indolent ulcerations, erythromelalgia and Renaud's disease.

Epilepsy

Associated with problems of muscle tonus is the perennial one of epilepsy—or the *epilepsies*, as this awe-inspiring aggregation of symptoms is better termed. Though no conspicuous progress has been made, the

question of pathogenesis has been attacked from various angles. Spielmeier rules out the acute changes recorded in various cases as being common to many other conditions, and views sclerosis of the cornu Ammonis, together with marginal gliosis, as the most distinctive feature in the pathology of idiopathic cases, though even these lesions may be due to a primary lack of resistance of these parts rather than to any specific etiologic change. Pollock and Davis have reported tonic spasms resulting from the injection of absinthe in decerebrate animals, thus demonstrating the importance of the brain-stem as a convulsive area. Danish workers view the epilepsies as *dys-regulative* phenomena dependent upon hydrogen-ion concentration, and favorable reports from others upon the treatment of juvenile epilepsy with a super-fat diet which produces an acidosis, seem to corroborate their work, in part at least.

Blood chemistry and basal metabolism studies have been negative of result. Starvation treatment based upon the hypothesis of intestinal intoxication has been abandoned, as has also the ablation of an adrenal. Luminal (phenobarbital) remains in favor for treatment, together with the bromides which it does not wholly supplant.

Pierce Clark's interesting conception of idiopathic epilepsy as a species of "life reaction" disorder deserves attention and special consideration in certain psychoneurotic types. The writer has recently observed an atypical case quite evidently motivated by an Oedipus complex. Many epileptics subject to typical major seizures evidence hysteroid manifestations at times. Substantiating Clark's views, in part at least, we find an increasing disinclination to view the heredity of epilepsy as seriously as in the past, but rather to regard it as an indication of the possible transmission of a less resistant, less efficient nervous mechanism—one that is more apt to become involved in difficulties than its more fortunate and sturdier fellows—a viewpoint not unlike that finally arrived at as regards the transmission of tuberculosis.

While various definitely organic disorders of the central nervous system have been further clarified, no startling additions have been made to our knowledge of their pathogenesis. Encephalitis lethargica, described by Economo in 1917, continues to be "the white-headed boy" of neurology, and enough has filtered into the general literature to make detailed consideration here unneces-

sary. As a result of these fascinating studies, the basal nuclei and neighboring regions of the brain threaten to take precedence over the hitherto all-important cortex, so largely do they seem to have to do with the manifold unconscious and semi-conscious activities of our life reaction.

Brain Conditions

Hassin, of Chicago, has made a large number of contributions to our knowledge of the reaction of the tissues of the central nervous system to insults of one kind and another: abscess, carcinoma, lead, typhus, etc. His theory of the absorptive function of the choroid plexus, though not generally accepted, is most interesting. Dandy's use of the x-ray in brain tumor diagnosis, by drainage of the ventricles and substitution of air for fluid, is a dramatic gesture and of real service in many cases not otherwise to be located. The procedure, however, is not without its dangers. Brain tumor is being attacked with greater diagnostic precision and surgical assurance, though, very naturally, results must always depend upon the location and nature of the growth. The use of hypertonic salt solution, by vein or bowel, to reduce intracranial pressure is an interesting and useful development. Repeated spinal punctures have also come into quite common use for the same purpose.

An obstetrical problem with neurological bearings concerns the prevention and treatment of intracranial hemorrhage in the new-born. Sharpe and MacLair report 13 out of 100 consecutive deliveries as showing blood in the spinal fluid, and an English observer questions if the apparently excessive number of birth palsies in the United States may not be part of the price we pay for our excessive hurry from the womb to the grave. Spinal puncture as a diagnostic and decompressive procedure in infants that show pressure symptoms may perhaps become a routine procedure.

Injection of alcohol is still popular in the treatment of trigeminal neuralgias, but the final resort, interruption of the sensory pathway higher up, has shifted in its locale from the Gasserian ganglion to the root of the sensory portion of the fifth nerve as it lies upon the crest of the petrous bone, thus avoiding the disagreeable and damaging anesthetics which followed the older operation.

Spinal Cord Lesions

As with the brain, so in the spinal cord, surgical technic and various supplementary

procedures have provided some of the most dramatic advances of recent years. Ayers' pioneer work upon the puncture of the cisternum magnum and the diagnosis of *spinal block* has been especially developed for the diagnosis of tumors invading the subarachnoid space. Spinal puncture just beneath the lowest point of the occipital bone has proven, in skilled hands, quite as harmless as lumbar puncture and gives opportunity for more direct treatment of meningitis, as well as a comparison of pressures above and below a suspected spinal tumor. Sicard of France has made ingenious use of Ayers' technic by introducing iodine in oil for x-ray diagnosis of spinal tumor.

Acute anterior poliomyelitis has recently been successfully attacked by repeated lumbar puncture—presumably relieving the injurious congestion and pressure in the anterior horns—and also by the injection of convalescent serum.

Franz, working at the Government hospital in Washington, has reported rather amazing results in the reeducation of hemiplegics, a laborious but worth-while process, when one considers the large numbers of these invalids condemned to great handicaps for years following their stroke.

Neurosyphilis

In neurosyphilitic conditions the problem still persists of fitting the treatment to the host. Tryparsamide is very useful but in late cases of paresis has failed to accomplish what was hoped for it; and its effect upon the optic nerve must be carefully watched. Mercury remains entrenched in its old position in the center of therapeutic attack, but subject to replacement now and then in "Wassermann-fast" subjects by *bismuth* which has created much favorable, even enthusiastic, comment in foreign literature during the past few years, and more recently in this country. Intraspinal injections of neoarsphenamine, mercury, or Swift-Ellis serum have been largely discarded in the treatment of paresis, though still used by some good men who feel they obtain results in this as in no other way.

While tryparsamide assists in the development of more remissions than neoarsphenamine, malarial infection, with ten or a dozen subsequent chills, seems to give even better results (35-60% of remissions), if we are to believe recent reports from here and abroad. [See Dr. Lake's resumé of the literature, *CLINICAL MEDICINE*, July, 1925,

p. 436.] In selected cases it is a quite harmless procedure and much less troublesome than treatment involving repeated intravenous injections. The writer has had considerable experience with both malaria and tryparsamide in one of our state hospitals, where the results in both series of cases have been much more striking than in any other form of therapy in his experience—and he has tried them all.

In the febrile form of treatment, as well as in any other for that matter, clinical improvement is not necessarily paralleled by that of the blood and spinal fluid. The improvement in paresis consequent upon infective processes, such as malaria and relapsing fever (also used abroad), seems to depend upon a reactivation of cellular metabolism, an increased ability of the host to produce antibodies and thus put a stop, for the time being at least, to spirocheticidal activities.

Focal Infections

Focal infection is doubtless at fault in some mental and nervous disorders and should always be searched for, but Cotton's almost ritualistic practice of "detoxication" in manic-depressive psychosis, dementia precox, and the psychoneuroses has not won the recognition of the profession which its persuasive representation would seem to warrant. Others have not succeeded with it, and there exists a doubt as to the manner in which the results are interpreted.

Dementia Precox

Dementia precox—that bewildering array of symptoms coupled with a bad prognosis, which accounts for more than one-half of the insane under state care at any one time—remains a sphinx-like riddle. The subject has been quite fully considered in a recent article in this journal (November, 1925, p. 750).

There is a growing tendency to break away from the old hard and fast concepts of dementia precox and manic-depressive and to speak of "reaction types" of a precox, depressive, manic or paranoid character. Efficient individuals in the ordinary walks of life are often plainly *schizoid* (precox-like), *syntonic* (manic-depressive-like) or paranoid in thought and behavior, and when, for any cause, mental disease develops in them the symptoms will be largely determined by these fundamental characteristics of personal make-up. Thus the writer has seen many paretics who were quite manic-like and others who closely resembled pre-

coxes. *The mental patient can bring to his psychosis only the habits of thought and action acquired as the result of physical constitution, childhood environment, early training and emotional experience.*

Psychoanalysis

The strife between the Freudian and non-Freudian groups continues, but with less noise than a few years ago. The contributions of Freud to our understanding of abnormal behavior are very generally accepted, though many refuse to follow him and his enthusiastic disciples in their more devious peregrinations in the subconscious. Certainly one who is accustomed to some introspection can not deny the relationship of many of his own dreams to the conflicts of his inner life. Psychoanalysis, however, is arduous and there are few who can perform its delicate operations upon the subconscious with skilled precision. In everyday practice, there seems to be a middle ground of mental therapy whereon many disorders can be righted, or at least ameliorated, by discussion of the patient's more or less conscious difficulties, together with instruction as to how he may face them and work out an honest solution of his problems.

The Volstead act seems to have reduced the number of alcoholic psychoses in some states, but in Illinois the number admitted to state hospitals is about at the pre-prohibition level. For the reason why we have failed to make the expected progress in this direction the reader is referred to countless discussions pro and con—but doubtless he has already made up his mind.

Care of the Insane

State care of the insane is slowly advancing, qualitatively as well as quantitatively. Overcrowding of state hospitals throughout the country retards progress, and custodial care is still stressed to the detriment of medical investigation and treatment. Psychopathic hospitals for research and education in mental medicine are, however, increasing in number and in usefulness. Those of Boston, Baltimore, New York, Ann Arbor, Iowa City, Denver and Madison are notable movements in this direction. Many state hospitals are doing better work along various lines. The use of trained social-service workers in obtaining neigh-

borhood information concerning patients, investigating home conditions prior to parole, following up cases after release and conducting out-patient clinics has become good hospital practice in the past few years, though far from common enough as yet. Training in mental nursing for affiliate students from general hospitals, such as has been furnished by the Illinois State School for Psychiatric Nursing, will in time provide a considerable number of nurses prepared to give mental patients intelligent care in home or hospital.

Occupational therapy for mental cases has, during the past five years, become a firmly established procedure, a well recognized aid in their rehabilitation. Well-organized private and public institutions now employ especially trained teachers whose business it is to use every strategy to secure the cooperation of listless, delusional and depressed patients in doing such work with their hands (weaving, basketry, painting, bead-work, toy-making, etc.) as will bring them into touch again with the real things of life.

Mental Hygiene Movement

Prophylaxis, however, is always better than treatment, and with all fairness it may be said that the greatest advance made by the public at large with relation to mental disorder centers about the mental hygiene movement. The work of the National Committee for Mental Hygiene and its constituent organizations in many of the states has resulted in a generous response of interest from the laity. Colleges and secondary schools, juvenile courts, charitable organizations and the industries are all becoming interested in the reasons and remedies for the behavior difficulties of students and delinquents; the employed and the unemployed.

The effect of this campaign for better behavior will not be very generally felt for some long time to come, but eventually reproduction will become less disastrous in its effects, environment will improve, early childhood training will not be quite so haphazard, physical disease will be less devastating—and thus the human nervous system will finally become less subject to a thousand ills.

30 North Michigan Blvd.

The Preparation of Gold-Sodium Thiosulphate (Better known as Sanocrysin)

By A. J. GELARIE, M. D., and F. R. GREENBAUM, D. Sc., Philadelphia, Pa.

THE discovery, by Professor Mølgaard, of gold-sodium thiosulphate as a cure against tuberculosis has aroused the greatest interest among physicians and biochemists.

Gold compounds have been used against tuberculosis before. Koch employed the double salt of gold-potassium cyanide, wherein the gold is present in the auro, or monovalent, form which seems to be less poisonous than the auric, or trivalent, form. It was found that, in a dilution of one to two million, gold-potassium cyanide completely inhibits the growth of tubercle bacilli.

Another gold compound which was used against tuberculosis was the aurocantan. These gold compounds however, have but a very limited curative effect because of their toxicity. They very frequently poison the system.

Krysolgan

A decided step forward was the discovery of krysolgan, by Dr. A. Feldt¹. Krysolgan is an organic gold compound, far less poisonous and much more curative than the two mentioned above. It is para-amino-ortho-aurothiophenol-carbonic acid, and is used in the form of its sodium salt, injected intravenously.

The recent discovery² that gold-sodium thiosulphate kills tubercle bacilli is of the utmost importance, as this compound is nontoxic and can be administered in larger doses than the other gold compounds.

Sanocrysin

Gold-sodium thiosulphate, which Professor Mølgaard called Sanocrysin, is by no means a new compound. A mixture of dilute gold-chloride solution with a dilute sodium-thiosulphate solution was employed in the middle of the nineteenth century in the Daguerre photographic process. Fordos and Gelis,³ two French chemists, investigated this mixture and succeeded in isolating a complex gold salt which was found to be gold-sodium thiosulphate. Its composition was determined as $\text{Au}(\text{S}_2\text{O}_3)_2 \cdot 3\text{Na}$, i.e., one molecule of aurothiosulphate with 3 molecules of sodium thiosulphate— $(\text{Au}_2\text{S}_2\text{O}_3 \cdot 3\text{Na}_2\text{S}_2\text{O}_3 \cdot 4\text{H}_2\text{O})$. We deal here with a complex salt which can be shown by

acidification with hydrochloric or sulphuric acid, whereby no sulphur is precipitated and no sulphur dioxide is produced. This complex gold compound will not be reduced by ferrous chloride, ferrous sulphate, oxalic acid, stannous chloride etc. to metallic gold. Hydrogen sulphide and ammonium sulphide precipitate gold sulphide. We also noticed that gold-sodium thiosulphate is somewhat decomposed by the influence of light, especially when in solution. A solution should be kept in a brown or blue bottle, otherwise a yellowish powder will deposit after a certain length of time.

Using the very incomplete information of Fordos and Gelis³ on how to make gold-sodium thiosulphate, we performed a number of experiments in an attempt to prepare it. We found that, in order to get high yields, a very high concentration of sodium-thiosulphate and gold-chloride solution is required. The addition of gold-chloride is carried out slowly under continuous, rapid, mechanical stirring. The following proportions were found to give satisfactory results:

Method of Preparation

Thirty Grams of goldchloride (light) were dissolved in 25 Cc. of water (120-percent solution of AuCl_3) and put into a dropping funnel; 105 Grams of sodium thiosulphate were dissolved in 120 Cc. of water (87-percent solution of $\text{Na}_2\text{S}_2\text{O}_3$), the solution filtered and then agitated by means of a small electric stirrer. The gold chloride was added gradually, a few drops at a time, then stirred until the yellow color disappeared, when a few more drops of gold chloride were added. The solution assumed a milky white appearance, due to the precipitated sulphur and the colloidal sulphur, and gave a strong odor of sulphur dioxide. The addition of gold chloride lasted about half an hour and the stirring was continued for some time. Then this milky liquid was filtered once to free it from the precipitated sulphur. After filtration, however, it still possessed a milky white appearance, due to the finely suspended colloidal sulphur. We got rid of this colloidal sulphur in the course of purification, as it is very difficult to remove it by repeated filtration.

This milky fluid was then stirred and while being stirred received an addition of about two and half its volume of 95-percent alcohol. A white precipitate was obtained after a little stirring. The addition of 95-percent alcohol causes a precipitation of the gold-sodium thiosulphate which is very readily soluble in water but insoluble in alcohol. At the same time the colloidal sulphur, too, was precipitated by the alcohol. This white precipitate was then dissolved in as little water as possible, the solution filtered (and in this way freed from the colloidal sulphur) and the clear filtrate reprecipitated with 95-percent alcohol. The white precipitate, filtered off from the alcohol, can be redissolved and reprecipitated as before to obtain a perfectly pure substance.

The alcohol of the first, second and third precipitation was allowed to stand for at least 24 hours when a considerable quantity of gold-sodium thiosulphate was precipitated. The gold-sodium thiosulphate crystallizes in colorless needles, if crystallization is allowed to proceed slowly. The method we used, however, gave a crystalline white compound. The product thus obtained was dried in air. It represents $\text{Au}_2\text{S}_2\text{O}_3\cdot 3\text{Na}_2\text{S}_2\text{O}_3\cdot \text{H}_2\text{O}$.

Thirty grams of gold chloride gave a yield which varied in the experiments from 45 to 50 G. of gold-sodium thiosulphate.

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Progress in Applied Therapeutics

By FRANK B. KIRBY, M.D., Evanston, Illinois

SO MUCH of practical interest along lines of applied therapeutics has developed during the past year that it seems difficult to list the most important. Probably the most outstanding event is the completion of the Pharmacopeia, Tenth Revision (U. S. P., X). This new edition is legally effective January 1, 1926, and therefore demands the attention of every doctor and druggist in the country, representing as it does the matured thought of the teaching faculties and the general practitioner.

We note the deletion of some products formerly thought to be of outstanding value. This, we feel, is as distinctly in the line of progress as additions. It takes practical experience along clinical lines to decide upon the final approval or disapproval.

Time was when the Fluid Extract, a product of American pharmacy, represented a distinct advance over any European pharmaceutical of the galenical type. However, the test of clinical trial has determined, in case after case, that the corresponding active principle is far and away ahead of this, the best class of galenical. Twenty-five Fluid Extracts and fifteen Tinctures have been deleted from the U. S. P., X. Over against this big deletion the readers of this journal will note with

special interest the further addition of alkaloids and other active principles in line with a distinct progress in internal medicine, as shown by the last several editions of the U. S. P.

We pass further reference to this outstanding finished work of the year by remarking that the Biologic Assay suggested in the U. S. P., IX, is now obligatory in a number of cases in the U. S. P., X. It is just such standardization, adding to his confidence in the drugs he uses, that will help the doctor of medicine to stem the growing tide of the drugless healers and cults. He names his own future when the doctor can say "I know" with reference to his drugs with the same confidence as in naming his diagnosis. Bio-assay contributes generously towards building that confidence and we warmly approve this further evidence of advance.

In the record of a year's advance, we are sure to find overlapping. The conservative investigator, whether in synthetic chemistry, the physiologic laboratory, pharmaceutical work, or applied medicine, is slow to announce a discovery. Often years of investigation precede a final adoption by the profession at large.

The internal secretions continue as a fruitful field of study, notable during the year being an accumulating clinical record

that more and more firmly establishes Insulin as the treatment for diabetes. Laboratory workers are still determined to improve the product itself and the method of administration. In common with the trend of the day, the synthetic chemical research workers have taken a hand at Insulin, promising further advances in this important subject.

The Parathyroid gland has had unusual attention. Too few facts are available, however, to consider the use of this hormone as established in medicine. In fact, it is suggested for parathyroid tetany only. Pituitary gland therapy is established by the results obtained by thousands in active practice, putting pituitary solution to the acid test of clinical results, and ably supported by a host of laboratory investigators.

Another year may show further advances in the interesting subject of gland therapy and the internal secretions. The successes of today in adding products of the adrenal, thyroid, ovarian, pituitary, liver and other glands makes more advances certain, encourages the clinician and warrants him in any experimental work along this line that may appeal to him.

Probably next in order (though maybe not in importance) is the work of MacDonald on the subject of liver extracts and blood pressure. This is mentioned, not to offer the reader anything to buy or use, as nothing is yet available for the market, but rather to stimulate thought and study in this interesting pathological condition. An enormous amount of work has been done. Much remains to be done as collaborators here and in Europe are working to the end that we shall have a dependable product of known chemistry, certainty of dose and measured as to results clinically. It still remains that the doctor interested in applied therapeutics and the use of drugs in the healing art, has at his back the accumulating work of scores of operators, scientists, and other clinicians with the one object in view to give him those "arms of precision" that will make him a better doctor.

It is no easy matter to separate the chaff from the wheat, and we shall have to omit some chemical drugs of the many that have been advanced during the year. Butesin Picrate must be mentioned, though only a local remedy. This is an antiseptic-anesthetic chemical compound, oil soluble, therefore available in ointment form and as a dusting powder. In it, the antiseptic action

of picric acid is still available with the anesthetic action of the butesin, giving us a product of unusual merit.

While on the subject of remedies for local use, it must be remarked that there is a growing objection to iodine for painting prior to operation or on the wound itself. If a staining germicide is desired for ocular effect or to outline an operative territory, Mercurochrome is probably the product of choice. On the other hand, Metaphen has many advantages as an effective germicidal product without the bad features of the stain. Both products are Council Passed and as such warrant professional confidence and approval.

Another product new to the profession in 1925 is Neonal. Here again like Butesin Picrate we have combined therapeutic properties, as Neonal is both analgesic and hypnotic. For years we have been satisfied with Barbitol and Hyoscine as pure hypnotics. The demand has been for a combination of therapeutic action in postoperative pain and restlessness so common in not only major but minor surgery. By relieving pain and producing sleep repair is encouraged and hastened during the first few post-operative hours or early after an accident.

The chemical research laboratory has to its credit another product of merit and promise known as Acetarzone (Stovarsol) for the treatment of Amebic dysentery and also as a prophylactic and curative in early syphilis. Acetarzone is relatively unknown as compared with Hexyl Resorcinol, known by the Council of Pharmacy as Caprokol. This product has marked germicidal value, especially effective in urinary infections.

Developments in intravenous medication have been especially marked in 1925.

For this purpose a special crystallization of Neutral Acriflavine may be had in crystal form, in ampules, for immediate solution in distilled water or preferably normal salt solution. The product is often a last resort remedy in septicemia. We find a $\frac{1}{2}$ of one percent solution is the usual strength employed in 20 to 50 Cc. doses dissolved in warm normal salt solution.

Among the mercurials for intravenous use is Metaphen. Much work has been done, but much remains before we can give the complete picture of its indications, dosage and method of administration. A beginning dose should be small, say 10 Cc. of a 1/1000 solution slowly increasing to 20 Cc. up to 30 Cc. Mercurochrome is given in-

travenously in doses up to 5 Mgm. per kilo of body weight.

Various commercial laboratories, with a good scientific staff as part of their equipment, have advanced numerous formulas for intravenous use as tonics, stimulants, antiseptics, etc. This indicates pressure on the part of the doctor out in the field, who sees results from the work already done and demands further physiological and chemical laboratory work that will make available more products and formulas for even better clinical work.

The possibility of help for the clinician in the use of various dyes has led to much investigation and some well established facts of practical value. We have already mentioned Neutral Acriflavine and Mercurochrome among the list and considerable interest has followed Churchman's work with a combination of Acriflavine and Gentian Violet. The percentages vary from 50 percent each to a mixture of 70 percent and 30 percent. This gives the clinician a number of products of choice as he continues to fight bacterial invasion by dye germicides harmless to the organism.

Active principles of vegetable drugs hold their own and gain ground. Hyoscine is still hyoscine, of definite chemical formula and therapeutic action and value. The same is true of Aconitine, Codeine, Strychnine and many other well known alkaloids and concentrations.

In this connection it is pleasing to note an addition to our "arms of precision" in

the alpha Lobeline, isolated by Wieland of Germany. Lobelia is a drug that deserves far more study than it has ever had, both laboratory and clinical. We have in alpha Lobeline a product more definite than the amorphous alkaloid with which we have had to be satisfied for years.

One more subject and we are through. We cannot pass a review of the year without remarking on the continued use of such products of the biologic laboratory as diphtheria antitoxin, smallpox vaccine and the specific bacterins. Over against this, however, we note a growing interest in the use of nonspecific bodies of a protein nature, principally milk (Lactigen, Aolan) in various forms, crotalin, peptone and horse serum. It seems necessary to remind our readers that conjoined internal medication is most necessary to insure that success in applied therapeutics that cannot be expected from the use of bacterins or proteins alone.

We present this subject as the most important part of practice next to a proper diagnosis. In fact, we place the naming of the pathological condition as secondary in value to exhibiting the remedy or remedies as indicated by a picture presented by laboratory findings and symptomatic evidence. In cataloging the outstanding progress of the year, we have not attempted to give dosage or any facts that can be had more at length in the original papers appearing through the year, leaving it to the reader for further research as may seem desirable.

TOO MUCH LOBELINE

IN AN article abstracted from the Med. Rev. of Rev., on pages 879 and 880 of our December number, the author recommended post-operative doses of lobeline as a preventative of bronchopneumonia. On thinking this over we believe the dose he gave seems decidedly too large. He probably meant 1/60 grain, and we feel that 1/100 grain would probably be still better.

Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

Recent Progress in Surgery

IT IS NOT my intention to rehash the surgical literature of recent years but to review some advances which have proved of decided value in our every-day, practical work.

We shall consider surgical progress from two viewpoints, namely, exact diagnosis and rational therapy.

We have two maxims in surgery which constitute the "motif" for this review: "Diagnosis is first", and "Do no harm".

In a complex art and science like surgery, resort must be had to allied sciences in our diagnoses and therapy, and we shall not hesitate to speak of such advances in any of the branches of medicine which have a direct bearing on the care and treatment of surgical diseases.

I. DIAGNOSIS

When the author began the practice of medicine, over thirty years ago, he found laboratory methods well advanced. We could identify the most important bacteria; we could classify structures histologically; we could detect the more important abnormalities of the urine; and we knew something of normal and abnormal blood. Shortly after this, Roentgen's discovery proved of some assistance in the diagnosis of bone lesions and we began to see that our vaunted skill in reducing fractures was not as good as we had believed—marking the beginning of self-improvement, which we could formerly have attained only by diagnostic incisions.

Syphilis

Laboratory methods have made rapid strides forward, and some discoveries have been epochal. To my mind, the Wassermann reaction and Schaudinn's discovery of the *Spirochæta pallida*, resulting in the darkfield examination of suspected lesions, deserve first mention, on a par with radiography.

A case will illustrate this.

Not so very many years ago, I happened to meet a country practitioner who told me

he had come to Chicago to have his right index finger amputated for a malignant growth. He showed me his growth, which impressed me as being an indolent ulcer, and I suggested to him to submit to the eminent surgeon who was to operate my opinion that the question of a chancre should not be overlooked. The physician protested that in his town all women he had examined were like Caesar's wife.

The eminent surgeon snorted when he heard my suggestion, but, on second thought, decided to postpone the operation. A few weeks later the physician visited me again and showed me a characteristic rash on his chest. A syphilologist now got him out of his difficulty. Such errors rarely happen today.

The surgeon must very often rule out syphilis in many suspected lesions, and the Wassermann test and spinal puncture prove not only reliable diagnostic aids in the great majority of instances but save much valuable time, for there is no longer any need to treat the class of patients under consideration with antisypilitics in order to determine the presence or absence of specific infection. We can settle this question now in as many hours as it took days before Wassermann gave the world his test.

I recall another illustrative case. Some years since, a popular novelist living in New Jersey had seen a number of physicians, who found he had an abdominal tumor and suspected malignancy. I suggested to him to see the late Carl Beck of New York, who later wrote me that the only hope for this patient was that a course of anti-syphilitic treatment might save him, as the growth had gone too far to justify the performance of an exploratory laparotomy.

Today, we need not lose time unnecessarily in recognizing the syphilitic or non-syphilitic character of a lesion of the viscera, though I emphasize the point that nickel-in-the-slot methods of diagnosis do not exist today nor will they ever exist,

otherwise medicine and surgery would be crafts and not arts.

Frozen Sections and the X-Ray

While speaking of malignancies, it may be mentioned that every surgeon acknowledges a large debt to laboratory methods, which enable the pathologist to make a histologic diagnosis in a few minutes. The surgeon who has before him a growth of a doubtful character need but pause a brief while in the midst of an operation to find out whether to perform a radical or merely a local operation.

The development of the blood count has given the surgical profession many valuable hints from the standpoint of differential diagnosis with a number of infectious diseases and, prognostically, with reference to the presence or absence of suppurative processes in acute affections.

The x-ray specialists have brought their specialty to an incredibly high standard, and, while much is left to be desired, the progress has been in keeping with the advances in allied sciences. Radiographs are no longer restricted to bony or hard structures. The use of opaque chemicals renders otherwise invisible viscera capable of radio-scopic and radiography, and this circumstance has made possible the diagnosis of lesions of the gastrointestinal tract, which could not possibly have been determined with the same degree of exactness by test meals, chemical analyses of the stools, etc. Surgeons are now in a position to recognize ulcers of the stomach, duodenum and jejunum; malignancies; abnormalities of structure and adhesions with a fair degree of certainty, although the interpretation of the plates is not infrequently subject to errors.

Cholecystography

Radiography of the gall-bladder, which has been, up to very recently, a negligible factor because of the uncertainty of diagnosis, has become an invaluable one through the Graham test.

An experience on my own person will confirm this. For more than four years past I have been a sufferer from some gastrointestinal disturbance with exceedingly annoying toxic phenomena. My case was diagnosed as duodenal ulcer, principally on the x-ray findings. Some time later, at Battle Creek, ulcer was ruled out, but instead a shadow suggested cholecystitis and cholecystectomy was recommended.

I would not allow such a diagnosis in the Seminar and I wanted more definite data

before undergoing a serious operation. Two week ago I was at Battle Creek again and this time submitted to the Graham test. The roentgenograms taken the following morning and noon showed a normal gall-bladder. All thoughts of operation have vanished. Dr. Case showed me a large number of radiographs made with the Graham test, which uncovered many errors in interpretation of plates made without it in the past, and he rightly suggested that today surgical therapy of gall-bladder disease is placed on a more satisfactory basis, as regards operative indications, than at any time in the past.

The Graham test is a disagreeable one, for the patient. Whether the injection can be rendered harmless by chemical modification or whether internal medication, as advocated by some workers, will achieve the same results for better cholecystography remains to be seen. Certainly, Dr. Graham and his coworkers have enriched surgical diagnostics.

Diabetes

Surgeons dread to perform elective operations upon diabetics. Urinary analysis no longer suffices prognostically, for the blood-sugar test will reveal danger signals when none are found in the urine. Fortunately, we owe to clinical and laboratory medicine a debt of gratitude, for the proper administration of insulin will prove a valuable surgical prophylactic where heretofore much time had to be devoted to obtaining amelioration of the condition through a rigid dietary regime.

Endoscopy

Mention must be made of the importance of direct inspection of inaccessible cavities by means of electrically lighted, tubular instruments. The bladder, the rectum and sigmoid, the trachea and the esophagus can be examined with comparative ease, and the examination of the bronchi is not beyond the reach of him who earnestly desires to become proficient in the necessary technic.

The use of the cystoscope has opened a wide field of usefulness. There is no longer need for surgical intervention in pyelitis without a definite and exact operative indication; and certainly no one will undertake a nephrectomy without first having ascertained that the other kidney is capable of performing its physiologic function. This leads to the mention of the functional test

of the kidneys, which is accepted as very satisfactory by all urologists.

II. TREATMENT

The *furor operativus*, against which the late Nicholas Senn thundered with his mighty voice, seems to have abated. True, recent graduates are still prone—if they are attracted to surgery—to urge operation at the least excuse; but, as our country is outgrowing the kindergarten class politically, and developing, in some respects, out of proportion to its age; so does the organized medical profession live up to ethical standards and respectability. There are still a large number of surgeons whose commercial spirit is out of proportion to their skill and to the elasticity of their consciences, but so far the licensing laws and several national surgical societies have failed to stop unnecessary and incompetent surgery. Surgery, however, differs from clinical medicine in that poor technic becomes discernible to everybody and results in the desertion of many adherents of scientific medicine to the camps of charlatans or fanatics.

There is a movement on foot to overcome this, and it is hoped that the splendid men who are backing it will succeed in finding a way to uphold the dignity of rational medicine and surgery.

Let us not forget that, in spite of our very best efforts, each surgical operation represents a serious risk, at least potentially, and every surgeon bends his utmost efforts to reduce the possible risks to the minimum.

Anesthesia

There is an almost constant endeavor to lessen the dangers incident to anesthesia. We shall not review the many attempts to substitute chloroform and ether, for so far all gases or chemicals of a volatile character have proven satisfactory only to a certain degree, casualties being reported now and then with any and all anesthetics.

Personally, I am inclined to the belief that we have in ether as safe an anesthetic as any, but that it requires expert handling. We have had something to say on this subject before, so we need only point out that local analgesia has been developed to a very high degree of effectiveness, and even the psychic factor can be taken into account by partial narcotization. The technic is, however, rather difficult, as is evidenced by the fact that, in large medical centers, local analgesia is being treated as a separate

specialty by a small number of physicians, who have qualified for this work. Thus we may soon see the spectacle of one surgeon performing the analgesia before and between the various operative steps made by the operator proper.

High-Frequency Currents and Radium

The various industries, especially the electrical industry, have contributed considerably towards reducing bloody operations and substituting therefor more or less bloodless procedures.

I mention the powerful high-frequency current as perhaps a better means of treating certain forms of papilloma of the bladder than the knife. The same modality is being employed with more or less pronounced effect in certain malignant growths, and the Roentgen rays are being utilized, with or without the aid of radium, to replace the knife in certain adenomatous and malignant growths.

Cooperation Between Surgeon and Internist

Perhaps one of the greatest advances made in surgery is the recognition that internal medicine is likely to be effective in many so-called borderline cases, and should at least be given a chance before resorting to the knife. To me, the saving of thousands upon thousands of patients from the knife, or at least from a wrongly timed operation, means much more than a mere development of methods or technics.

We no longer rush patients with ulcer of the stomach or duodenum to the operating table, but call upon the gastroenterologist to try out dietetic and medicinal measures, as he deems best, with the result that many, very many, are cured. This is a victory for Internal Medicine which redounds to the credit of Surgery.

Regarding the strict indications for gastroenterostomy or gastric resection, the battles that have been waged between the diverse camps are quieting down and the likelihood of agreement as to which of the two operations is rationally indicated in certain diseases of the stomach, duodenum and jejunum is strong throughout our land and even in ununited Europe.

We see, accordingly, the spectacle of more radical surgery elevated to the rank of a conservative procedure when the curative results are better following extensive surgery, as compared with the lesser intervention of producing an artificial channel of communication within the digestive tract.

Mention must here be made of the Fredet-Rammstedt operation, which is a compara-

tively safe procedure as compared with the more formidable operation of gastroenterostomy for pyloric stenosis of the newborn.

Neuro-Surgery

Neuro-surgery has advanced at an astonishing rate, so much so that there is a recognized specialty of brain and spinal cord surgery. The diagnostic means have been improved through the aid of localization, and a better appreciation of the clinical findings. Finally, a direct method of exploration must be mentioned which is known to few general surgeons, and that is brain puncture.

The introduction of a needle into the spinal column for diagnostic and therapeutic purposes has become very popular, but when one mentions the same procedure in brain lesions, most practitioners shrug their shoulders, yet the writer has performed this operation a number of times under local analgesia without harm to the patients. The notion that no trephine can be used without some guard to prevent the instrument from accidentally injuring the dura has caused many to dread the idea of drilling a hole through the calvarium and taking the chance of entering the brain. But in the first place it requires but ordinary skill to drill through the skull and keep the instrument out of the brain; and in the second place those who are timid can put over the tiny drill a guard or knob, held in place by a set-screw.

The value of brain puncture is inestimably great in a number of affections of the brain which do not produce focal symptoms and in which the x-ray gives us little information. I refer particularly to hemorrhages, suppurative processes, cysts, hydrocephalus, etc. Often the little opening will permit the syringe to accomplish, slowly, what a more extensive but also more serious operation would achieve more rapidly, thereby adding another conservative measure in hazardous surgery.

The Thyroid

The thyroid has been claimed by surgeons and internists alike. Here, too, we encounter directly opposite opinions, but the tendency towards proper selection of cases which are likely to be benefited by ligation or thyroidectomy and the preference of endocrine and medicinal treatment for affections characterized by certain types of dysfunction is rapidly coming to the front,

assuring a greater conservation and better therapeutics than in the immediate past.

Lungs and Heart

Lung surgery has made rapid strides forward, so much so that the old, extensive rib-resections are seldom seen nowadays. This, in my opinion, is due to our better diagnostic facilities, which enable us to recognize suppuration of the pleura or lung comparatively early. Indirectly, negative and positive pressure, which are not essential in operations on the pleura and lung when the morbid processes are walled off, have contributed much towards the development of operative technic and the time is not far distant when partial resection of a lung will be as frequent as appendectomy.

Operations on the heart proper and on the pericardium have been a great novelty a few years since, but the literature shows that they are becoming more and more frequent, often producing astonishingly favorable results.

General Advance in Technic

Our own teachers must stand in awe at the great advance in surgical technic. They who looked upon a hysterectomy as a fearfully mutilating operation now know—if they still live—that there is scarcely a viscus or organ that has not been subjected to the surgeon's knife. Vascular surgery has progressed so far that one can only surmise how soon it will be possible to repair or control large aneurysms of the great bloodvessels, as is being done now for medium sized vessels. The World War has developed plastic surgery to such an extent that text-books on surgery, written before 1914, are entirely out of date.

Our orthopedic surgeons have not stood still and much is being done throughout Europe and America to overcome the ravages of the epidemic of trauma which mutilated millions of men on the European battlefields.

We are entering upon a new era. Recognizing the true character of disease, as representing merely pathologic physiology, surgery is assuming a scientific character which looks upon the purely mechanical as of secondary importance. As pathology and bacteriology progress—as we learn to look for the cause of disease beyond mechanistic and humoral pathology—modern surgery becomes a true art to the operator or healer, but an art based upon the science of biology.

Clinical Notes and Practical Suggestions

The Diagnosis and Treatment of Sciatica

SO FAR as my information extends, sciatica occurs only in bipeds, which fact may have some significance for our evolutionist friends. There are, however, so many immediate and obvious causes for inflammation and degeneration of the sciatic nerve trunk that we do not feel any need of searching for phylogenetic considerations.

The symptoms arising from a disease of this nerve are so frequently confused with those associated with other pathological conditions in the lumbosacral region and upper thigh that one neurologist has suggested that we throw the word sciatica into a common waste basket with the terms headache, bellyache, and bilious attacks. That inflammations of the sciatic nerve do occur, however, without any other disease in the surrounding parts, cannot be denied, and we feel justified in using the word in this restricted sense.

The onset of the disease is usually quite sudden, the first symptom being that of pain and tenderness. This is very acute and has a distinctly radiating quality, being most intense posterior to the hip joint and extending to a varying degree down the leg. There may be some motor disorder at first, as a tendency to drag the foot with muscular weakness, producing a sense of insecurity when resting the weight on the affected leg. If the inflammation continues for any length of time, I have frequently observed a decided muscular atrophy and a weakened and sluggish response to the sinusoidal current as compared with the opposite leg. This difference in the electrical excitability is very helpful in differentiating from an arthritis or peri-arthritis of the hip-joint and from sacro-iliac disease. There is sometimes an increased sensitivity to the current as compared with the opposite side. This is more noticeable when the active electrode is applied directly over the fourth and fifth lumbar nerve roots.

Another characteristic that will serve to differentiate sciatica from hip-joint disease is the fact that there is nearly always an associated sacro-iliac pain; i.e., pain produced by quickly extending the legs as in changing from the stooping to the erect position. The several classical signs such as Laseque's, Kernig's and Patrick's are based on the sensations produced by these changes of positions. I shall not take the space here to describe them as they can be found in any recent reference book.

Bilateral disease should always make us think of a cord lesion, especially if there are any bladder or rectal symptoms or marked paralysis. We recently saw a case that began with intense pain in the sacro-iliac regions, affecting the entire left leg. He was given an application of diathermy for the relief of the pain with good results. Twelve hours later he had paralysis of the leg and bladder, and the next day the other leg became involved. Evidently this trouble must have originated in the sacral plexus and later developed in the anterior horn cells. We were somewhat apprehensive at the time that the application of local heat may have disseminated the infection and provoked an ascending neuritis, but the occurrence since then of similar cases without treatment and the fact that such an outcome would be the opposite of our ordinary experience has discredited this view.

We should not lose sight of the pelvic diseases that may produce a referred pain along the course of the sciatic nerve.

Practically all the cases of true sciatica we have seen were secondary to a sacro-iliac inflammation so that we have come to think of the disease as originating in the periarticular tissues and subsequently involving the nerve sheath. At any rate, by applying treatment according to this conception, we get results and we are pragmatic enough to accept that as reasonably good evidence. The classification of the

disease into radicular, middle, and lower types appears to us more academic than practical as we have had only one case in which we found it necessary to treat the middle portion as well as the proximal part.

In applying diathermy we use a 4x5 inch electrode directly over the sacro-iliac joint, the inner edge reaching well over to the opposite side of the spine, with the long dimension horizontal and the upper edge coming just above the iliac crest. A 5x9 inch electrode is placed on the abdomen. If there is still some soreness in the lower part of the nerve trunks after thirty minutes' diathermy, we use the indirect Tesla current along the nerve, grounding a nonvacuum electrode directly on the machine. In all our cases we follow diathermy with general quartz-light radiation and sinusoidal massage for a few minutes, and where there is an associated lumbago we use a deep-therapy lamp and sinusoidal stimulation of the lumbar roots. The usual eliminative measures and attention to possible foci of infection must not be neglected.

It is not common that we find focal infection in the cases that come to the physiotherapist for treatment, as that avenue has usually been quite vigorously explored (I almost said exploited) before they reach us.

There is one other point to which our attention has been directed in connection with these inflammatory changes in the nerve trunks, and that is the age incidence. While sciatica often occurs in young individuals we have never seen it in children and it seems to be of greater frequency in the period past middle life, the attacks showing a tendency to become increasingly severe with advancing age. In fact, it may present itself as a part of the general picture of senescence—the halting, awkward, old men described in classic literature—one of the many sclerotic changes that announce the dying of the divine spark of life.

G. J. WARNSHIUS,

Lidgerwood, N. Dak.

NEW REMEDIES IN USE (Butesin Picrate and Benzyl Fumarate)

I should like to say a good word for butesin picrate ointment. I have found nothing better for treating burns and cutaneous abrasions and contusions. It makes an ideal sedative, antiseptic and non-adherent dressing, under which the skin heals wonderfully quickly.

Benzyl fumarate and, to a less degree, benzyl benzoate have given me satisfaction in treating asthmatic attacks. A few doses greatly relieve and cut short the spasm. These drugs are less harmful, in my opinion, than the "asthma smokes", which appear to cause considerable bronchial irritation, thus tending to increase the frequency of the spasms.

GEO. ACHESON,

St. Catharines, N. B., Can.

GRIP TREATED WITH PEST SERUM

The present recurrence of the influenza epidemic on a large scale in Europe and America has directed special attention to the discovery of a Paris physician. Dr. Charles Folley. As a result of long-continued experiments, Dr. Folley claims to have found a remedy for grip in its various forms. This remedy consists simply of hypodermic injections of the antiplague serum produced at the Pasteur Institute in Paris.

While not going so far as to aver that grip is really a form of bubonic plague. Dr. Folley points out that the same serum may be successfully used in the same group of diseases.

His experiments were begun on himself. Following a laboratory accident in October, 1918, by which he inoculated himself with the influenza microbe, he demonstrated that the antiplague serum, which acts as a preventive of the plague, cures the grip. So far, not a single case has been lost by Dr. Folley and he regards his remedy as sovereign.

Influenza is still spreading in Paris, but, although the cases are numerous, they are much less serious, generally, than was the case last year. So far it has not been necessary to set aside special wards in the hospitals, but isolation is practiced. Measures have been taken by the health authorities to cope with the epidemic, should it attain larger proportions. Much more alarming is the spread of diphtheria, especially in the more congested quarters.

B. SHERWOOD-DUNN,

Nice, France.

[As there is not, so far as we know, any biological relationship between the *bacillus pestis* and the organism of influenza, it seems likely that the results obtained by Dr. Folley are due to a nonspecific foreign protein reaction and might be obtained with

sterile horse serum, milk, or some other like substance. This might prove an interesting field for clinical investigation.—Ed.]

THE APPENDIX AND THE X-RAY*

The vermiform appendix, contrary to the general opinion, is a useful organ—an actively functioning lymph gland, especially during the first half of life. Its function is connected with the digestion of fats and with the expulsive power of the cecum.

This organ may be present in almost any locality in the abdomen, and the x-ray will locate it and either save it for the patient or show when it should be removed. It may frequently be visualized by fluoroscopy after a bismuth meal.

A normal appendix will fill and become visible, on the film or by fluoroscopy, sometime within 3 to 5 days after a bismuth meal. An appendix which will not fill and become visible is probably abnormal.

Chronic appendicitis may be the cause of cecal and colonic stasis and other gastrointestinal symptoms. A delay of 6 to 8 hours or more in the emptying of the terminal ileum and any marked degree of cecal stasis are highly suggestive, if not diagnostic of chronic appendicitis.

If it is possible to make a radiograph of the appendix before operation, it will give the surgeon much valuable assistance in locating that organ when it occupies an abnormal position, as it frequently does.

G. B. L.

*Abstract of a paper and discussion by Dr. M. J. Hubeny before the North Shore Branch, Chicago Medical Society, November 3, 1925.

MULTIPLE WARTS (VERRUCOSIS)

I noticed in the November number of CLINICAL MEDICINE (page 793) an article on Extensive Verrucosis that seems to have resisted treatment. Having seen a very extensive case of that kind, in which the whole scalp gradually became affected, I thought it might be of interest. I was not his doctor, but he spoke to me about his case several times and finally informed me that the treatment had been local, with different kinds of caustics, the electric needle and dissection, all of which had done no good. Now he had heard of a man in the country who could cure them "by the moon" and required only three moons. I advised him to try it, as it would do no harm even if it did no good. He took my

advice and persevered for four moons with no results. The warts kept on multiplying until they numbered hundreds. At last he asked me if I could do anything for them, to which I replied we could only tell by trying, the same as everybody else had done.

I put him upon:

R Magnes. Sulphate 3iv
Magnes. Carbonate 3i
Aqua Dest., q.s. ad 3xvi
Misc. et Sig.: ½ to 1 tablespoon 3 times a day,

and in eight weeks the warts were all gone without any local treatment.

Case No. 2: A female child, two years old. The genitals, hips and the whole diaper-covered region were thickly studded with hundreds of fine, white warts. All warts disappeared in four weeks under the same treatment, in teaspoonful doses, three times a day.

LEWIS R. MUNDHENK,

Middletown, Ohio.

PRECAUTIONS IN USING NITRIC ACID

In the November number of CLINICAL MEDICINE, on p. 798, I read your advice as to touching warts with nitric acid.

Once a man came into the office with about a dozen warts on both hands. I applied nitric acid and in about two weeks he came back again, this time with his hands covered with vicious looking ulcers. This patient was an ice man and his hands were wet the greater part of the day, and the dilute acid had spread into the tissues. Fortunately, he was a lenient patient or it would have been good material for a malpractice suit.

I now use nitric acid as freely as before, but I never omit neutralizing it after it has done its work with sodium bicarbonate solution, which I apply until it stops "boiling".

If that girl washes dishes, she might have the same experience as the ice man; while, if we neutralize it first, we are safe, and the result is the same, with less irritation.

M. K. J. BLANCHARD,

Kirk, Colo.

A SOLUTION OF DR. KENTON'S HEART PROBLEM

Since the publication of the heart case of Mr. B., in the October number of CLINICAL MEDICINE, on page 708, and since receiving your letters, this patient appeared before the Annual Clinic at Mitchell, S. Dak., where he was seen by Dr. Fred M. Smith,

Professor of Medicine at the State University of Iowa, whose comments on the case are embodied in the following letter:

"I wish to acknowledge your letter concerning Mr. B., whom I saw at Mitchell. Mr. B., as you know has auricular fibrillation and he probably has degenerative changes in the coronary arteries which is responsible for this trouble. When I saw him, his cardiac rate was at least 120 to the minute. If his heart rate continues at this level, he will, no doubt, in a very short time begin to have symptoms of cardiac failure. I would recommend that he be given sufficient digitalis to control his cardiac rate and that you strongly impress upon him the necessity of avoiding exercise which would produce shortness of breath, otherwise he will most certainly suffer the consequences of a cardiac breakdown within a relatively short time."

This patient had some bad teeth, which have been extracted, but there are no valvular lesions and kidney disease seems not to be a factor in the case. A man of this age (53) might have an arteriosclerotic background, but if so it is not apparent.

C. B. KENTON,

Artesian, S. Dak.

WHY NOT VACCINATE THE COWS?

Dr. Jacobi, when president of the American Medical Association, observed that any mother or wet nurse who has had diphtheria, or, for that matter, any other infectious disease, accumulates antitoxins in her blood and in her milk and thus protects both herself and her nursing. If this be true—and few doubt it—any mother who has been vaccinated and has thus had cowpox accumulates antitoxins in her blood and in her milk which protect her nursing, for an indefinite time, against reinfection with cowpox and probably smallpox.

By analogy, any cow that has had cowpox accumulates antitoxins in her blood and in her milk and thus protects both it and her future nursing from infection with cowpox, while it is a nursing; and, as the antitoxic material in her milk is the product of the cowpox bacteria, it should presumably protect persons using it against a smallpox infection.

Further, according to the views of Pasteur, bacterial products which prohibit an infection will also lessen the virulence of the infection. This would indicate that the milk of cows that have been vaccinated

could be used not only to prohibit smallpox infection but also to lessen the virulence of a smallpox infection and shorten its course.

From these considerations, we are led to infer that all smallpox hospitals might well be furnished with a small herd of vaccinated cows to supply their patients with milk for medical purposes as well as for food. Vaccination would not injure the cows, and milk from such cows could not be told from other milk except by the medical effect produced.

The fact that the blood of a person convalescing from scarlet fever and measles has an inhibiting effect on scarlet fever and measles infections would indicate that, if we could cause cows to have the diseases of childhood, we could use the milk of such cows to lessen the virulence of our childhood infections.

W. S. GREGORY,

St. Joseph, Mo.

COLITIS

On September 26, 1925, I was called to see a baby one year old, and I found the following conditions: bowels acting eight to ten times in twenty-four hours, the stools containing blood and mucus; emesis persistent, the vomitus having a greenish color.

The treatment consisted of sulphocarbonate of zinc, 1/6 grain, every two to four hours, alternating with arsenite of copper, 1/500 grain; ten drops of emetine hydrochloride solution hypodermically every day for three days. The diet was hot water and white of egg.

On the fifth day of treatment, about midnight, the child seemed very weak and exhausted. At this time bowels moved and in the stool there appeared a black spider. Did the spider cause all the trouble?

I have found the emetine hydrochloride, 1/2 grain hypodermically, the best treatment for diarrhea, acute and chronic dysentery and especially in amebic dysentery. I saw two cases cured of bloody stools of twenty years' duration with three ampules each of emetine hydrochloride, 1/2 grain, with no return of the trouble. If we have anything better, I should be glad to know of it.

S. D. WETHERBY,

Middletown, Ky.

The Leisure Hour

Conducted by GEORGE H. CANDLER, M. D.

Up Hill—And Down

FOR just a little while we *play* in meadows starred with flowers,
And then begin to climb the hill which far above us towers—
Towers so high, we cannot scan conditions on its crest,
Or tell if places there may be where we can stop and rest.

Mists veil the peak, but, here and there, the sunlight pierces thro',
And straight the path leads up the side, towards the *Ever New*.
Boldly we scale the lower heights and urge on those below—
"There is a long, long climb ahead—you must not be so slow."

The road grows rougher; shadows fall, fierce storms break overhead,
The tender feet, which danced at first, are bruised and torn and red.
Early some fall, too frail to stem the torrent, rocks and shoal;
Others press on and gain the peak they deemed the final goal.

Arrived, they find the trail leads *down*, slowly at first, then sheer:
Not distant now can be the end—a day, a month, a year?
And then at last, the journey o'er, pray that it please the Powers
To grant again that all may *rest* in meadows starred with flowers.

G. H. C.



"Chacun A Son Gout"

THAT, I believe, is what the historic old dame said when she kissed the cow, thereby revealing a shocking lack of taste, if you should ask me. Cows were not architecturally designed to be kissed. Their oral orifices are entirely too large for osculatory purposes, and their noses, always decidedly dewed or even *damp*, are, esthetically anyhow, unsuitable for caressing. Then there is their cud-chewing habit. That of itself would discourage most would-be kissers; yet the old lady kissed and lived to tell about it. Other people, figuratively speaking, "kiss cows" continually and not only tell but *brag* about it. They like what you and I don't fancy and seem to thoroughly enjoy doing the wrong thing. If you point out the error of their ways, they say "tastes differ"—and all one can do is thank *le bon Dieu* that it is so.

Being human, we all like to kiss or be kissed, but most of us are distinctly particular about the "kissed". Cruel fate may *compel* us to kiss a cow—or a calf—once or twice in our lives but we do it with shivers and shut eyes, and forever thereafter run when we see a cow approaching. At least, I know I do and thus have escaped some imminently impending horrors. There are so many quite kissable creatures that it would seem unnecessary to deliberately buss bovines.

All this leads up to a general consideration of this "Each one to his taste" *motif*. We will grant to all persons the right to do that which pleases them, provided they do not, by so doing, infringe on the rights or nice susceptibilities of others; but we protest against having the details of "cow kissing" continually served up for our delectation—or detestation. We get fearfully tired, for instance, of being fed each morning—and again at dewy eve—upon the abnormal, the bizarre and the moronish. Most of us wonder whether the editors of some of the "leading newspapers" have not "kissed cows" so often that they have learned to like it and imagine the great reading public—who have to read what is given it—yearn for the same thing.

They feature the Crook, the Child Assaulter, the Beneficent Bootlegger, the Gunman, and the Pliable Politician—to say nothing about the Divorcee and "the way it was done"—until those who do not *know* differently, imagine that these are the stars

in the human firmament and their procedures quite the usual caper. The young are being taught to "kiss cows"—which as one might point out once more, is an excellent example of doing the right thing in the wrong place.

If you will take this matter up with a newspaper man (*not* a "journalist") he will tell you that a newspaper, to be a success, must print *all* the news, and abhorrent things (or things which are supposed to be so) are particularly, NEWS. The decent, usual and benign acts of Smith are just "ordinary happenings", worth at the most, five lines; but the derelictions of Brown are NEWS and, if serious enough, worth columns and double or even spread heads. "If", he will continue, "people didn't want this kind of thing the papers couldn't print it; but, they *do* want it, they *will* have it and, if one paper has ten more lines than another of bloody detail regarding a murder, that paper will sell ten times as many copies. It is circulation which counts and you can only have circulation by giving the people what they want."

If the newspaper man is correct, most people *want* to "kiss cows" or, at least, enjoy seeing other people do it. As a matter of fact, the newspaper man is wrong—he is "kissing cows". Some people eat garlic, and green onions, and goulash, and limburger cheese, but none of them (I hope) are on the typical family table three times a day. Still, by precept and example, it might be possible to train a whole nation to live mainly upon a combination of "spaghet", garlic and limburger, said combination being shovelled into the mouth with the cupped hand. Unpleasant things are only unpleasant to those who know the nice from the nasty and if those who "kiss cows" and like to talk about it, kiss often enough and talk loudly enough, they will soon have followers. Think what a country this would be if MOST of us "kissed the cow" as a matter of choice—or even of course! Then think what a country this *is* when we have to start the day unfamiliar with things or else read slush about delinquents—male and female—which would horrify hades! We would like the *news*; yes, please; *but* we would like it washed, at least once, in running water and served without garlic, paprika or Thousand Island dressing. We really would like the "soft pedal" upon *nasty* things, and the crescendo placed on happenings worth while.

Most of us who have grown up *know* that Life, being real, is also *raw* in spots, but we are not blow-flies to seek out and dwell on those areas. We *know* the body politic has boils, blains and putrefying sores on it but we don't like these for breakfast; neither do we really yearn to carry the whole mess and uncover it each evening in our peaceful homes. Some day, some healthy-minded editor will wake up to the fact that the people are eating literary carrion because nothing much else is purveyed them and will proceed to serve out clean, mental food. When he does, watch his circulation—he'll be "First with the Latest" all right.

Until that time all we can do is avoid the "rotten" newspapers as we would tainted fish. None of us relish that dish and a smelly oyster is not eaten by particular people—even by those who smack their lips over a putrescent paper. However, one can become habituated to almost anything. In "Dear Old Albion" they hang pheasants and partridges up by the tail until they drop and then eat the odoriferous cadavers—well smothered in bread sauce. They like their cheese "alive" too. You see, for ages the landed gentry had no way to preserve the game they alone could kill so they had to eat it "High". Soon that became the proper thing and now with modern refrigeration plants none but a middle-class boulder would think of eating game that was *not* "gamey". The consumption of decayed meat has become a national habit—with limitation, of course.

Now the important question arises: Have we, from long familiarity with "nasty" journals, become so generally tainted ourselves that here (as in England) only a certain class recognize (and reject) putridity when they read it? If we are to believe the editors, we have "kissed the cow" so often that we enjoy the process and clamor for more. I, for one, do not believe we have reached this stage *yet*, but I am quite sure if the present condition continues, the generation now maturing will be so familiar with vice, that many of them will embrace it. That is not a pleasant thought, but if you will contemplate the existant disrespect for authority, the disruption of family ties and the mental outlawry of our adolescents, you will begin to have at least a *suspicion* that the end will far surpass the means which brought it about. You

cannot continually expose villainy in attractive—even heroic—garb, without awakening the desire in immature minds to find out a little more about it. And, the worst of it is that today so many physically mature people have immature—but inquisitive—minds; and, to control *their* conduct we have so many mellifluous-voiced morons that the Law "as is" has become a huge joke to a large portion of the community.

And through it all a great many daily papers which might be mighty instruments for good, are steadily engaged in "kissing the cow" and, by example, teaching others to perform the same very objectionable act. We might at least let the editors know our views on the matter (1) by expressing them directly and (2) by reducing their high pressure circulation. Now is an excellent time to bid them "kiss the cow" goodbye!

"Deacon White," said Parson Jackson, softly, "will you lead us in prayer?"

There was no answer.

"Deacon White," this time in a little louder voice, "will you lead?"

Still no response. Evidently the deacon was slumbering. Parson Jackson made a third appeal and raised his voice to a high pitch that succeeded in arousing the drowsy man.

"Deacon White, will you lead?"

The Deacon, in bewilderment, rubbed his heavy eyes and blurted: "Lead yourself—I just dealt!"

AS IT IS WRITTEN

Message a Swedish servant took over the telephone, making note of it on the lady's engagement pad:

"Mrs. Galtman galtop enezas suns yukom mom galerop nomer howlet izgonebe galerop."

Translation:

Mrs. Goldman called up and she says as soon as you come home call her up. No matter how late it is going to be call her up.

The evening lesson was from the Book of Job and the minister had just read, "Yea, the light of the wicked shall be put out," when immediately the church was in total darkness.

"Brethren," said the minister with scarcely a moment's pause, "In view of the sudden and startling fulfilment of this prophecy, we will spend a few minutes in silent prayer for the electric lighting company."

Thumbnail Therapeutics

INSULIN IN GASTRIC DISORDERS

Small doses of insulin (1-3 unit to 1 unit, daily or less often) have resulted in prompt improvement in a number of cases of loss of appetite and other evidences of gastric malfunction, associated with a variety of acute febrile diseases.—DR. JOSEPH F. BIACH, of New York.

NUTRITIONAL DISORDERS OF INFANTS

In those severe nutritional disturbances of infants characterized by profuse watery diarrhea, prostration, rapid loss of weight, gray color of the skin and acidosis, the most successful feeding is by a caloric diet of undiluted lactic acid milk with the addition of fair amounts of corn syrup.—DR. MCKIM MARRIOTT, of St. Louis.

CATHARTICS IN THE AGED

Cathartics are a sheet-anchor in treating the aged. Always give a laxative when called upon to treat an old person. A dose of Epsom salts will often clear up many indefinite symptoms.—*Med. Rev. of Rev.*

HYOSCINE HYDROBROMIDE FOR HICCUGH

A man of 45 years had had severe hicough for a week. Spasms occurred about every two minutes. I gave him two doses, of 1-100 grain each, of hyoscine hydrobromide, two hours apart. In three hours after the first dose the hicough stopped entirely. DR. G. E. LIPSITT, of Foleyet, Ont., Canada.

SODIUM THIOSULPHATE AND THE ARSPHENAMINES

Neoarsphenamine ("914") may be given dissolved in a solution of sodium thiosulphate without interfering at all with its spirocheticidal power.—DR. HARRISON, in the *Lancet* for May 30, 1925.

HYPERACIDITY

Many old chronic patients find relief from taking sodium sulphate, 5 grains, and sodium sulphocarbolate, 5 grains, in hot water, before meals and at bedtime.—JAMESON, in *Med. Sum.*

PREMATURE LABOR AND THE THYROID

There are distinct indications that, in the absence of syphilis, fetal death in utero and premature labor are associated with hypothyroidism. Two patients to whom this accident had occurred went to full term with large, healthy babies when given thyroid substance during pregnancy.—DR. RAMSEY MUNRO, in *Edinburgh M. J.*

INTARVIN IN DIABETES

Careful observations have shown that Intarvin may be taken in large quantities, over long periods of time, by diabetics, without giving rise to any toxic symptoms.

Its use causes a gain in weight and strength and relieves the sense of hunger. It has never produced ketosis.

It is a useful adjuvant to insulin, where this product is being used.—HEFT, KAHN AND GIES, in *J. Pharm. & Exper. Therap.*

OINTMENT FOR THE REMOVAL OF WARTS

R	
Pyrogallol	90 grains
Carbolic Acid	10 grains
Salicylic Acid	30 grains
Benzoinated Lard	1 ounce
— <i>Pharm. Zentralhalle.</i>	

CORAMINE IN COLLAPSE

An effective and promptly-acting substitute for camphor (which acts rather slowly) has been found in the new drug *Coramine*. This product is soluble and may be given by mouth, subcutaneously or intravenously. Best results are obtained by giving 1 Cc. intravenously and 1 Cc. subcutaneously. It may be used wherever camphor is indicated and gives better results.—DR. K. GUTH, Heidelberg, Germany.

IODINE IN PERNICIOUS ANEMIA

In cases of pernicious anemia good has frequently resulted from the administration of 2 to 5 drops of a 5-percent solution of potassium iodide, by mouth, continuously for years. This will not interfere with the use of arsenic if the latter drug is to be used.—DR. GOTTFRIED HOLLER, in *Wien Klin. Wchnschr.*

Current Medical Literature

COLOR THERAPY

Much has been written recently on the effect of sunlight as a whole and also of those forms of light comprising x-rays, ultraviolet rays, and the like. But little has been done in the way of exploiting these rays when broken up as color.

Mr. J. Dodson Hessey (*Practitioner*, November, 1925, cxv, p. 342) refutes the objection to color therapy that it can have none other than an emotional or aesthetic value. He finds that color affects not only the physical, but the mental and emotional aspects as well. In fact, he has found after several years' investigations that the three most useful colors are green, blue, and orange, and that these give definite effects. Green has a remarkably soothing effect upon the nervous system; it dilates the capillaries, giving a sensation of warmth, and relieves pain; it also lowers blood-pressure. Blue contracts the capillaries and therefore gives a sensation of coolness; on these lines it tends to raise the blood pressure. It appears to have an influence on the body cells and the blood, as distinct from the nervous system, and reduces inflammation. It also acts as a tonic. Orange is a general stimulant, tonic, and vitalizer. Other colors used are yellow, red, and amethyst. Yellow is a mental stimulant. Red is warming and irritating, and must be used sparingly, particularly in inflammatory conditions. Amethyst is stimulating and invigorating.

With regard to treatment, the method Mr. Hessey applies is as follows:

"The patient is seated in an easy chair or reclining on a couch in a darkened room. The light, enclosed in a dark lantern—I use a 1,000 candlepower lamp—is modified to the desired color by screens of gelatine or some similar substance, and thrown upon the patient, who should be wearing a minimum of clothing—a white gown is preferable, and dark clothes should be avoided. I have found it useful to use a sheet of thin silk of a similar shade to the light to throw over the patient, and I also use hangings of the same color in order to get the benefit of the reflected light."

Once the color is chosen, two methods may be employed. One is to leave the patient in a bath of the color, the color being thrown over him and reflected from all sides by the color-screens; in this he can stay for a variable time, one hour under green and less with other colors, the red being given for not more than fifteen minutes. Treatment should be daily.

The other method demands the presence of the practitioner, and during this process his right hand should be resting lightly on the head of the patient. It is an interesting point that certain patients under the influence of color will develop a slight con-

dition of hypnosis, when they are able to get a very clear visualization of the color employed, not only as a cloud in front of their eyes, but all round them. They may go further and may be able to make use of what Dr. Eugene Osty terms "metagnosis," a kind of interior vision in which they can see the color permeating the body.

The type of case amenable to treatment by this method is varied. Mr. Hessey has had very satisfactory results in such conditions as neuralgia, neuritis, insomnia, asthma, tinnitus aurium, high blood-pressure, rheumatoid arthritis, lumbago, chronic bronchitis, irritable heart, auricular fibrillation, mental depression, shell-shock, and various forms of nervous debility.

H. J. A.

THE RURAL MEDICAL CRISIS

An anonymous writer in *Med. Economics* for October, 1925, suggests that the shortage of physicians in rural districts is due to the fact that many of the smaller medical colleges have suspended operations and medical education is now largely centralized in a comparatively few large schools.

This writer deploras any attempt to lower the standards of medical education for country practitioners or anyone else, and pays tribute to such "country doctors" as Ephraim McDowell, Walter Brashear, William Beaumont, J. Marion Sims, and the Mayos, who have risen to international fame.

The trouble, he believes, is not that medical education is too thorough but that it is too expensive; and he feels that, if a number of the best of the small medical colleges in various parts of the country could be revived, it would enable many able and ambitious young men to obtain a thoroughly satisfactory medical education with much less financial outlay than is required in attending the centralized medical schools in our large cities.

ALUMINUM-POTASSIUM NITRATE IN OSTEOMYELITIS

Dr. Max Thorek, of Chicago, in the *Illinois M. J.* for August, 1925, recommends the use of aluminum-potassium nitrate in the treatment of osteomyelitis. This compound is obtained by crystallizing aluminum nitrate and potassium nitrate from concentrated nitric acid.

The action of this drug is quite different from that of antiseptics and germicides, in that it stimulates the growth of the infecting organisms but attenuates their virulence, converting a chronic process into an acute one. It is not a substitute for, but an adjuvant to, surgical intervention.

Dr. Thorek gives the following technic of application and description of the reaction produced:

"The aluminum-potassium-nitrate compound is applied directly to the skin over the affected area in a plastic dressing into which the compound is incorporated. A very suitable vehicle is prepared from ordinary rolled oats sterilized for two hours, in order to destroy the proteolytic enzymes which would otherwise tend to invert or sour it. The vehicle is made by adding about 50 Cc. of boiling water to the ounce of dry rolled oats and stirring until a uniform mass is produced, after which the aluminum-potassium-nitrate compound is added and thoroughly mixed. The average dose is approximately thirteen grains of the compound to the ounce of dry rolled oats. The dressing is applied about one-eighth of an inch thick, directly to the skin, well beyond the limits of the affected area, and is covered over with some waterproof material, such as oiled silk. The dressing must remain absolutely in contact with the skin continuously and should be changed as often as it becomes saturated with secretions and at least once in thirty-six hours.

"If the aluminum-potassium-nitrate compound be applied in a nonplastic medium, such as a gauze pack, it does not produce any of the typical reactions or effects following its application in the manner above described.

"The first effect and typical reaction is the appearance of an erythema, manifested within forty-eight hours. This is followed by the appearance of pustules and vesicles containing purulent fluid confined to the area affected. This definite reaction continues while infection persists in the underlying deep tissues."

More than 100 cases of various kinds, including 55 cases of osteomyelitis, have been treated by this method at the American Hospital, Chicago. Of the 55 osteomyelitis cases, 29 were clinically cured and 25 showed more or less clinical improvement.

This drug is nontoxic and the method of application is simple. In almost all cases pain is relieved with surprising promptness.

CHEMISTRY AND PHARMACEUTICAL MEDICINE

In the *J. A. M. A.* for July 11, 1925, Paul N. Leech, Ph.D., director of the chemical laboratory of the *A. M. A.*, interestingly discusses the aid which chemistry has given to the pharmaceutical industry, and thus to the cause of scientific medicine.

Dr. Leech reviews the history of chemistry in medicine, from 1905, when the *A. M. A.* laboratory was established. At that time Germany was supreme in the field of synthetic chemicals and the American pharmaceutical houses marketed the German synthetics and prepared tablets and decoctions, mostly of vegetable origin. Medical advertising was unchecked and frauds were daily perpetrated upon the profession as well as upon the laity.

The stresses of the War, when the German synthetics were unobtainable and our own chemists had to undertake their manufacture were well met, both by chemists and pharmaceutical manufacturers, and today the domestic products are fully equal to those made abroad.

Today all reputable pharmaceutical houses are making their advertising conform very closely to the facts. There is still a tendency to the use of therapeutically suggestive names, such as "sciatica tablets", "carbuncle ointment", etc., but these are growing less, and more dignified names, such as butyn, mercurochrome, arsphenamine, suggesting chemical composition rather than effects, are taking their place.

The future of pharmaceutical medicine seems to lie in the hands of the chemists, and those manufacturers of drugs who maintain an active staff for scientific research are building wisely for the future.

PRESENT STATUS OF THE TREATMENT OF SYPHILIS

The treatment of syphilis is like the latest time-table, "subject to change without notice". Each clinician is guided by his own experience; Schamberg (*Therapeutic Gazette*, June 15, 1925) in the light of his own would advise as follows:

1.—*Treatment of primary syphilis with a negative Wassermann:*

As soon as diagnosis is made by darkfield examination, administer intramuscularly 100 mg. of bismuth; three days later 0.6 Gram neoarsphenamine. Then for a period of eight weeks continue this line of treatment. At the end of this course, after a rest of three weeks, give ten weekly injections of from 1 to 2 grs. of salicylate of mercury intramuscularly. After inaction for a month, make a blood and spinal fluid test. If it is not possible to carry out the spinal fluid examination, a further security course of ten weekly injections of bismuth is desirable. In nearly all cases this treatment should result in a definite cure.

2.—*Seropositive primary syphilis and secondary syphilis:*

Bismuth and neoarsphenamine should be used as above indicated, but the treatment should be continued for twelve weeks. At the end of this time a blood Wassermann should be made. Many clinicians also advocate a spinal fluid test at this time. A negative blood Wassermann will in many cases be obtained at this time, but such a reaction should not lead to cessation of treatment, as serologic relapses are not uncommon. A month's rest should be given, and the character of the subsequent treatment determined by the Wassermann outcome. If it is positive, the same course as the preceding should be repeated. If negative, then a course of fifteen weekly injections of 100 mg. of bismuth should be carried out. A rest of six weeks is then given and a course of twelve weekly injections of 1 grain of mercuric salicylate administered. This program covers virtually a year. During the second year if

the blood Wassermann is negative, two courses of four injections of neoarsphenamine should be given and two courses of 10 injections of bismuth. If it is positive, a spinal puncture should be performed and the usual four tests—Wassermann, cell count, protein, and gold curve—should be made. If this is negative, with a positive blood, the treatment should approximate that of the first year. If it is positive, the treatment advised for cases of syphilis of the nervous system should be resorted to.

During the third year a course of four injections of neoarsphenamine and fifteen injections of bismuth is advised. Before the discharge of the patient, it is extremely desirable—I may say necessary—to have a spinal fluid examination.

This treatment may seem tedious and arduous, but in the long run it will conduce to the best interests of the patient and will bring about a higher percentage of cures than less thorough measures. It is difficult to outline a routine treatment for all patients. Individualization is better, but requires great experience and skill, and more frequent serologic tests of the blood and spinal fluid, as well as careful physical examination. Some patients will doubtless under the régime formulated, be treated beyond the necessities of the case, but this is far better than the cessation of treatment before the patient is cured. With conjoined early treatment the dosage of all the medications may be kept moderate, thus lessening the liability to serious reactions.—*Am. Med.*, Sept., 1925.

ANTIFREEZING SOLUTIONS FOR RADIATORS

Chas. H. LaWall reported in the *Am. J. of Pharm.* for 1922, No. 2, that *Commercial Glucose*, 1½ pints to each gallon of warm water, will keep an automobile radiator from freezing all through the winter without any further addition, except of water. It will not corrode metals or rubber. It gets slushy at 10° F. but does not become solid at even lower temperatures.

Drain and rinse the radiator in the spring.

Ind. & Eng. Chem. for November, 1925, carries an article by Curme and Young recommending *Ethylene Glycol* for this purpose.

ABDOMINOSCOPY

We have a variety of instruments for looking into the various body cavities which have an external opening, but, heretofore, in investigating conditions in the abdomen, we have resorted to the exploratory laparotomy.

In *Surg. Gyn. and Obst.* for September, 1925, Nadeau and Kampmeier, of Chicago,

report a method by which the interior of the abdomen may be examined without doing a laparotomy.

The site of entry is 3 Cm. to the right of the umbilicus. The tissues, down to the peritoneum, are anesthetized with a 1-per cent novocaine (procaine) solution; a small incision is made in the skin, through which a spinal-puncture needle is introduced, through the rectus muscle, into the abdominal cavity; the abdomen is moderately inflated by means of an air-pump; a trocar, with a special, flexible cannula is introduced into the abdomen; a Braasch (direct vision) or Brown-Buerger (indirect vision) cystoscope is passed through the cannula, and the interior of the abdomen examined in the same way that any endoscopy is performed. Like all endoscopic procedures, much practice and a thorough familiarity with normal appearances is necessary to success.

CONTROL OF DIPHTHERIA

Dr. Dwight M. Lewis, of New Haven, Conn., believes that most cases of diphtheria are contracted by contact with nasal carriers, and that these carriers increase in numbers following epidemics of respiratory diseases, especially measles.

In the *M. J. & Rec.* for August 19, 1925, he sets forth his reasons for this belief and states that, if, following measles and other epidemics, careful search is made among children for nasal diphtheria carriers and these carriers are isolated and treated until their noses are negative, there will be a marked decrease in the diphtheria morbidity and mortality in our cities.

HOT WATER IN ECLAMPSIA

The usual methods for producing the catharsis and diaphoresis which are so necessary a part of the treatment of eclampsia are frequently impossible of application, or so slow and cumbersome as to be without value.

In the *Therap. Gaz.* for August, 1925, Drs. Otto Kiene and Ross E. Weaver, of Concordia, Kans., recommend that a large catheter be passed into the stomach through the nose or a stomach tube through the mouth—guarding it against the teeth—and that, through this tube, six pints of water as hot as the hand can bear be poured as rapidly as possible. This treatment may be repeated after several hours, if needed, and 15 grains of chloral may be dissolved in the water, if it seems to be required.

Sweating is said to be prompt and profuse, with marked relaxation and relief of vomiting. Catharsis follows in a short while.

Fifteen cases have been treated by this method, with recovery in every case. In 12 cases, there were no convulsions after the hot water was given.

New Books

PALFREY: THE ART OF MEDICINE

THE ART OF MEDICAL TREATMENT. With Reference Both to the Patient and to his Friends. By Francis W. Palfrey, M.D. Philadelphia: W. B. Saunders Co. 1925. Price \$4.50.

The practice of medicine is an art in which the teachings of medical science are put to their practical application. The primary purpose for which a physician is called is to relieve the patient of his disease or distress; the secondary purpose is to relieve his relatives and friends of anxiety and responsibility. The thoroughly successful physician must do both.

This book differs from most others in giving, in clear, direct and simple language, complete directions for the entire management of a case (assuming, of course, that the physician has arrived at a sound and correct diagnosis), from start to finish. Suggestions are given for the arrangement of the sick-room, the diet and general care of the patient. Medical treatment is divided into that which is curative, palliative or supportive. Methods are outlined for preventing the spread of the contagious diseases and for anticipating or meeting the complications which may arise.

Decidedly novel and valuable is the detailed information which may properly be given to relatives and friends as to the degree of seriousness of the condition; the possibility of complications or sequelæ; the probable duration of confinement to bed and to the house; and other matters which may bear upon the domestic or financial arrangements of the family.

In general those diseases are considered which are of most frequent occurrence in family practice, and the advice given seems to be uniformly sane, sound and to the point.

The book is well made; the type is clear and easy to read; and the index is adequate.

Few books which we have recently had the pleasure of reviewing appeal to us as being so eminently valuable, for the senior student, interne or young practitioner as this one; and many men who have been in practice for some years could read it with vast profit.

PHYSICIANS' VISITING LIST

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1926. Revised. New York: William Wood & Company. 1925. Price \$2.00.

In addition to containing a compact and satisfactory visiting list for every day in the year, arranged for 60 patients per week (it is also made up for 30 and 90 patients per week), this handy little volume has a calendar for 1926, with the last six months

of 1925 and the first six months of 1927; an obstetrical calendar; table of equivalents; dose table; diagnostic and therapeutic hints; and other interesting memoranda.

It is neatly and attractively bound in leather, in pocket size, and has a pocket for cards, etc., and a pencil in a loop.

FAIR: HUMOR OF OBSTETRICS

SOME OF THE HUMOR AND PATHOS OF OBSTETRICS. By H. D. Fair, M.D. Third Edition. Muncie, Ind.; Scott Printing Co. 1925. Price \$2.85.

This book reads like the friendly, semi-technical "shop talk" which one hears around the hotel lobbies and such places during a big medical meeting—gossipy little stories about the human side of obstetrics, with the intricate social relationships that it often involves before, during and after.

It is intended entirely for entertainment in hours of relaxation but the reading of some of these cases suggests a train of thought that may readily lead one to a better appreciation of the problems which some of these patients present.

HUMPHRIS: ACTINOTHERAPY

ARTIFICIAL SUNLIGHT AND ITS THERAPEUTIC USES. By Francis Howard Humphris, M.D., F.R.C.P., M.R.C.S. Second Edition. 1925. Revised and Enlarged. Illustrated. London: Humphrey Milford (Oxford University Press). Price \$2.75.

A brief and well-written discussion of therapy by ultraviolet rays. There are several more practical and useable books on the subject written and published in this country.

DEWEY: PSYCHOLOGY OF YOUR NAME

THE PSYCHOLOGY OF YOUR NAME. By Nellie Viola Dewey, F.T.S. Revised Second Edition. Chicago: The Theosophical Press (826 Oakdale Ave.). 1924. Price \$1.75.

TREMEL: MEALS FOR INVALIDS

EVERYDAY MEALS FOR INVALIDS. A Collection of Tiny Recipes, Tasty and Nourishing, for Every Day in the Year. By May Trembel. New York. Greenberg, Publisher, Inc. Price \$1.25.

JACKSON: NEUROLOGICAL FRAGMENTS

NEUROLOGICAL FRAGMENTS. By J. Hughlings Jackson, M.D., F.R.S., F.R.C.P. London: Oxford University Press. 1925. Price \$3.75.

Medical News

A GOOD OPENING IN IOWA

Peterson, Iowa, a town of 700 people, is being left with no resident physician, and a protestant doctor who would locate in this town would be eagerly welcomed and could do a good business from the start.

The town is surrounded by rich farming country, with good, gravel roads in all directions. There are two hospitals within practicable distance. The town has two banks, two churches, lodges and other business and social advantages.

Rooms for office and living purposes are available for rental. There is *nothing to buy*.

Interested physicians may address Mr. W. C. Longnecker, Peterson, Ia., for further particulars.

OPENING IN CALIFORNIA

We have information that there is an excellent opening for a young physician in California, especially one whose wife is a nurse and would like to work with him.

Anyone who is interested should write to Dr. F. W. Yocum, Chowchilla, Calif.

THE NEW PHARMACOPOEIA

The New Pharmacopoeia will go into effect, officially, on the first of January, 1926.

Every physician should either have the book in his library or should, at least, thoroughly familiarize himself with any changes which have been made. This should be done at once.

AN INTERNATIONAL PHARMACOPOEIA

Conferences looking to the preparation of an international Pharmacopoeia and the adoption of international standards of drug standardization and regulation were held in Brussels, Belgium, in September, 1925.

Twenty-seven countries had representatives at these conferences, the one from the United States being Dr. Andrew G. DuMez, of the Public Health Service.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION

The American Electrotherapeutic Association will hold its Mid-winter session at the New York Academy of Medicine on January 6, 7 and 8, 1926. All legally licensed physicians are invited. For particulars address Dr. George J. Ott, 344 Commonwealth Ave., Boston, Mass.

CIVIL SERVICE EXAMINATIONS

Applications for appointment as Physiotherapy Aide, Pupil Aide and Assistant will be received until January 9, February 13, March 13, April 17 and May 15, 1926. There are vacancies at St. Elizabeth's Hospital (Psychiatric), Washington, D. C., and in the Veterans' Bureau and the Public Health Service.

The salaries range from \$720.00 per year, with room, board and laundry (equivalent to about \$1300 per year) to \$1860.00 per year.

Full information will be furnished by the Civil Service Commission, Washington, D.C.

OPENING IN CHICAGO

There is an opportunity for someone who would like to secure a location on Chicago's west side, by reason of the fact that Dr. George Moe, of 4217 Washington Blvd., wishes to sell his property and practice.

LOCUM TENENS AVAILABLE

If any physician in Illinois desires to get away for any reason and wishes someone to handle his practice during his absence he would do well to communicate with Dr. J. C. Jackman, 750 W. Forest Ave., Decatur, Ill., who is now available for such service.

TEACHING PHYSIOTHERAPY

There are, at present, in the United States, 19 medical colleges where physiotherapy is taught as a regular part of the course of instruction, and in some of these schools this work is required for graduation.

Send for This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceutical, physicians' supplies, foods, etc., CLINICAL MEDICINE will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use the numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

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| Y-30 | Helping the Cell to Help Itself. 32-page booklet. The Alkalol Co. | Y-306 | Letters-in-Evidence from Physicians. Philo Burt Mfg. Co. |
| Y-41 | Specific Urethritis. Riedel & Co., Inc. | Y-378 | The Heart and its Disorders. 36-page booklet. Fellows Medical Mfg. Co. |
| Y-63 | Arsenauro and Mercauro. 100-page booklet. Parmele Pharmacal Co. | Y-413 | Preliminary Report on the Use of Diallylbarbituric Acid and Ethyl Morphine in Obstetrics, by Lyle G. McNeile, M.D. 8-page booklet. Ciba Company, Inc. |
| Y-84 | Storm Binder and Abdominal Supporter. 4-page folder. Dr. Katherine L. Storm. | Y-414 | Habit - Time. 24 - page booklet. Deshell Laboratories. |
| Y-92 | New Light on an Old Remedy. 12-page booklet. Century National Chemical Co. | Y-419 | Ten Scientific Reasons for Using Pluto Water. French Lick Springs Hotel Co. |
| Y-217 | A Modern Reconstructive Tonic. 4-page folder. Carroll Dunham Smith Pharmacal Co. | Y-428 | V-E-M. Schoonmaker Laboratories, Inc. |
| Y-222 | Rabies Vaccine. 24-page booklet. Parke, Davis & Co. | Y-432 | Health, Growth and Happiness for Boys and Girls. 24-page booklet. Ralston Purina Co. |
| Y-236 | The Glycerophosphates. 8 - page folder. Smith, Kline & French Co. | Y-433 | Home Treatment of Tuberculosis. 32-page reprint of articles by Dr. Beverly Robinson and others. Charles Killgore. |
| Y-238 | Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co. | Y-434 | Safe sedation. 12-page booklet. John B. Daniel. |
| Y-242 | The Endermic Treatment of Febrile Conditions. 24-page booklet. Pneumo-Phthysine Chemical Co. | Y-435 | A Sanitarium Vacation. 24-page booklet. The Ralph Sanitarium. |
| Y-243 | Useful Information for the Practitioner. 24-page booklet. Chas. H. Phillips Chemical Co. | Y-439 | Naftalan. 10-page booklet. Ft. Dearborn Drug & Chemical Co. |
| Y-249 | A Sinusoidal Manual, by T. C. Cornell, M.D. 54 - page booklet. McIntosh Electrical Corp. | Y-450 | The Last Word in Air Cushion Pessaries. Huston Bros. Co. |
| Y-271 | Pharmaceutical Preparations of Established Merit. 11-page booklet. E. Bilhuber, Inc. | Y-456 | The World's Most Wonderful Canal. 16-page booklet. Reed & Carnrick. |
| Y-295 | Taurocol Tablets. 4-page folder. Paul Plessner Co. | Y-473 | The Calcreose Detail Man. 14-page booklet. The Maltbie Chemical Co. |

- Y-479 Formulas for Infant Feeding with Modified Milk Combined with Sharp & Dohme's Milk of Magnesia. Sharp & Dohme.
- Y-516 Atophan-Salicylic Compound. 16-page booklet. Schering & Glatz.
- Y-530 Bismuthoidol in the Treatment of Syphilis. E. Fougera & Co.
- Y-535 Tissue Fibrinogen in the Treatment of Hemorrhage. C. A. Mills, Ph.D., M.D. Cincinnati, Ohio. Wm. S. Merrell & Co.
- Y-536 Foot Weakness and Correction for the Physician. 48-page booklet. The Scholl Mfg. Co.
- Y-554 The Care and Feeding of Infants. 60-page booklet. Mellin's Food Co.
- Y-556 Erythrol Tefranitrate Merck. Merck & Co.
- Y-567 Victor Roentgen Apparatus. New Universal. 8-page booklet. Victor X-Ray Corp.
- Y-568 Dietary Sources of Calcium and Phosphorus. E. L. Patch Co.
- Y-586 Plants Which Cause Hay Fever. 36-page booklet. The Arlington Chemical Co.
- Y-589 The Feces in Diagnosis. Wm. R. Warner & Co., Inc.
- Y-590 Journal of Intravenous Therapy. New York Intravenous Laboratory.
- Y-595 The Electron, December, 1925. McIntosh Electrical Corp.
- Y-596 Constipation in Infancy. 12-page booklet. Mellin's Food Co.
- Y-597 Diet for the Sick. Mellin's Food Co.
- Y-599 Loeser's Intravenous Solution of Calcium Chloride. New York Intravenous Laboratory.
- Y-600 Loeser's Intravenous Solution of Colloidal Iron. New York Intravenous Laboratory.
- Y-601 The Intravenous Treatment of Malaria by B. S. Wyatt, M.D. New York Intravenous Laboratory.
- Y-602 The Reserve Wealth of the Kidneys. 16-page booklet. Reed & Carnrick.
- Y-603 Actinotherapy by Edwin N. Kime, M.D. 7-page booklet. Victor X-Ray Corp.
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- Y-607 Recent Studies Concerning the Metabolism of Phosphorus. Smith, Kline & French.
- Y-608 The Quartz Lamp, November issue. Hanovia Chemical & Mfg. Co.
- Y-609 Geroxide. Pharmacal Products Co.
- Y-610 An Entirely New Way for Treating the Prostate Successfully. Electro Thermal Co.
- Y-611 Theocalcin. A well-tolerated Diuretic Vaso-dilator and Cardiac Tonic. E. Bilhuber, Inc.
- Y-612 The Uses of Physiotherapy. Nos. 1, 2, 3, 4, 5, 6, and 7. H. G. Fischer & Co.
- Y-614 The Feeding of Infants in Diarrhea. Mellin's Food Company.
- Y-615 The Efficiency of Intravenous Therapy in Malaria and Certain Other Conditions, by F. R. B. Coggin, M.D. New York Intravenous Laboratory.
- Y-616 The Intravenous Use of Iron and Arsenic in Over 100 Cases. By Louis Stern, M.D.
- Y-617 "Wantz Jr." Victor X-Ray Corp.
- Y-618 Applicators and Accessories. Victor X-Ray Corp.
- Y-619 Diet and Dental Decay. Pepsodent Co.
- Y-620 Urotropin. 30-page booklet. Schering & Glatz.



